

# ÜBER DIE AUFLÖSUNG DES KEPLER'SCHEN PROBLEMS.

VON

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WIRKLICHEM MITGLIEDE DER KAISERLICHEN AKADEMIE DER WISSENSCHAFTEN

VORGELEGT IN DER SITZUNG AM 7. MAI 1855.

Das in der Bewegung der Himmelskörper so wichtige Kepler'sche Problem hat bereits zahlreiche Lösungen erfahren; die diesbezügliche Literatur ist zu einem solchen Umfange angewachsen, dass es schwierig wird, von einer Lösung zu behaupten, dieselbe sei völlig neu. Gleichwohl halte ich die in den folgenden Zeilen gegebene Lösung für neu; ist sie bekannt, so ist sie jedenfalls einer unverdienten Vergessenheit anheimgefallen.

Die Lösung der transcendenten Gleichung

$$M = E - e \sin E$$

in Bezug auf  $E$  bildet den Ausgangspunkt der diesbezüglichen Untersuchungen. Man kann dieselbe leicht in die Form

$$\operatorname{tg}(E-M) = \frac{e \sin M}{\frac{E-M}{\sin(E-M)} - e \cos M} = \frac{e \sin M}{\lambda - e \cos M} \quad 1)$$

überführen, in welchem Ausdrucke der Kürze halber  $\lambda = \frac{E-M}{\sin(E-M)}$  gesetzt wurde.  $\lambda$  wird sich in Bezug auf die Excentricität nur um eine Grösse zweiter Ordnung von der Einheit unterscheiden; hat man nun eine Tafel, die mit dem Argumente  $\operatorname{tg}(E-M)$  sofort den Werth von  $\lambda$  ergibt, oder was mir bequemer erscheint, mit dem Argumente  $\log \operatorname{tg}(E-M)$  den Werth  $\log \lambda$ , so wird sich der auf die Gleichung 1) gegründete Rechnungsmechanismus, wie folgt, gestalten:

Man entlehnt mit dem Argumente  $\log e \sin M$  aus der unten folgenden Tafel einen Näherungswerth von  $\log \lambda$ , berechnet mit Hilfe desselben nach der Formel 1) den Werth  $\log \operatorname{tg}(E-M)$ , der jedoch von dem wahren Werthe, weil  $\lambda$  nicht völlig richtig angenommen wurde, etwas abweichen, aber denselben jedenfalls schon nahe liegen wird. Mit dem so erhaltenen Näherungswerthe von  $\log \operatorname{tg}(E-M)$  nimmt man aus der unten folgenden Tafel einen verbesserten Werth von  $\log \lambda$  und gelangt damit zu einem neuen Werthe von  $\log \operatorname{tg}(E-M)$ , der der Wahrheit näher liegen wird als der früher erhaltene; indem man die Rechnung diesen Vorschriften gemäss so lange wiederholt, bis keine Änderung in den Zahlen selbst hervortritt, ist der wahre Werth von

log tg( $E-M$ ) ermittelt, somit auch  $E$  bekannt, da der Unterschied der excentrischen Anomalie von der vorgelegten mittleren Anomalie ermittelt ist. Zunächst wird man bemerken, dass  $\lambda$  für positive wie für negative Werthe von ( $E-M$ ) denselben Werth erhält, ferner, dass das beschriebene Verfahren den Vortheil hat, dass man innerhalb der Näherungen niemals von den trigonometrischen Tafeln Gebrauch zu machen genöthigt ist; für kleine Excentricitäten wird das Verfahren sehr rasch convergiren, minder für grössere Werthe von  $e$ . Das eben angegebene Verfahren lässt sich jedoch so abkürzen, dass auch für sehr bedeutende Excentricitäten eine mehrfache Wiederholung der Näherungen umgangen werden kann. Es sei  $\lambda_0$  der Werth, welcher einer Annäherung zu Grunde gelegt ist; man erhält also nach 1)

$$\operatorname{tg}(E-M+x) = \frac{e \sin M}{\lambda_0 - e \cos M}, \quad 2)$$

in welchem Ausdrucke  $x$  die Abweichung des wahren Werthes von ( $E-M$ ) gegen den thatsächlich gefundenen darstellt. Ist letztere als klein zu betrachten, so dass man mit Berücksichtigung der ersten Potenzen dieses Fehlers eine hinreichende Annäherung erhält, so wird, wenn man der Kürze halber für ( $E-M$ ) den Buchstaben  $\alpha$  einführt, aus der obigen Gleichung 2) folgen:

$$\operatorname{tg} \alpha + \frac{x}{\cos \alpha^2} = \frac{e \sin M}{\frac{\alpha}{\sin \alpha} \alpha - e \cos M} - \frac{\operatorname{tg} \alpha}{\lambda_0 - e \cos M} \left\{ \lambda_0 - \frac{\alpha}{\sin \alpha} \right\}$$

oder, mit Rücksicht auf 1):

$$x = - \frac{\sin \alpha \cos \alpha}{\lambda_0 - e \cos M} \left\{ \lambda_0 - \frac{\alpha}{\sin \alpha} \right\}. \quad 3)$$

Nun ist aber, wenn man aus der unten folgenden Tafel mit dem Argumente log tg( $E-M+x$ ) den Werth von  $\frac{E-M+x}{\sin(E-M+x)} = \frac{\alpha+x}{\sin(\alpha+x)} = \lambda_1$  entlehnt, mit derselben Annäherung wie früher:

$$\lambda_0 = (\lambda_0 - \lambda_1) + \lambda_1 = \lambda_0 - \lambda_1 + \frac{\alpha}{\sin \alpha} + \frac{x}{\sin \alpha} \{1 - \alpha \operatorname{cotg} \alpha\},$$

daher:

$$\lambda_0 - \frac{\alpha}{\sin \alpha} = (\lambda_0 - \lambda_1) + \frac{x}{\sin \alpha} [1 - \alpha \operatorname{cotg} \alpha].$$

Führt man diesen Werth in 3) ein und bestimmt hieraus  $x$ , so wird:

$$x = \frac{(\lambda_1 - \lambda_0) \frac{\sin \alpha \cos \alpha}{\lambda_0 - e \cos M}}{1 + \frac{\cos \alpha}{\lambda_0 - e \cos M} (1 - \alpha \operatorname{cotg} \alpha)}. \quad 4)$$

Setzt man also abkürzend:

$$f = \cos \alpha (1 - \alpha \operatorname{cotg} \alpha), \quad 5)$$

so wird:

$$\lambda_2 = \frac{\alpha}{\sin \alpha} = \lambda_1 - (\lambda_1 - \lambda_0) \frac{\frac{f}{\lambda_0 - e \cos M}}{1 + \frac{f}{\lambda_0 - e \cos M}}, \quad 6)$$

wodurch der für die nächste Wiederholung der Rechnung notwendige Werth erhalten wird. Es ist klar, dass die Formel 6) unverändert auch für das logarithmische Increment gilt, also auch geschrieben werden kann:

$$\log \lambda_2 = \log \lambda_1 - (\log \lambda_1 - \log \lambda_0) \frac{\frac{f}{\lambda_0 - e \cos M}}{1 + \frac{f}{\lambda_0 - e \cos M}}. \quad 7)$$

Entwickelt man  $f$  nach Potenzen von  $\alpha$ , so erhält man leicht:

$$f = \frac{\alpha^2 \cos \alpha}{3} \left\{ 1 + \frac{1}{15} \alpha^2 + \frac{2}{315} \alpha^4 + \frac{1}{1575} \alpha^6 + \frac{2}{31185} \alpha^8 + \dots \right\}$$

Da  $\alpha$  von der Ordnung der Excentricität ist, so ist  $f$  eine Grösse zweiter Ordnung der Excentricität; daher wird für den in 7) auftretenden Factor meist einfach genommen werden dürfen:

$$\frac{f}{\lambda_0 - e \cos M},$$

indem man den zugehörigen Nenner der Einheit gleich setzt. Die unten folgende Tafel gibt mit dem Argumente  $\log(\pm \operatorname{tg}(E-M))$  in den ersten Columnen den Werth  $\log \lambda = \log \frac{E-M}{\sin(E-M)}$ . Sie ist theilweise von mir, theilweise von den Herren F. K. Ginzler und Dr. Eduard Mahler zehnstellig berechnet worden, für die kleineren Werthe von  $\operatorname{tg}(E-M)$  nach der Form:

$$\log \lambda = \operatorname{Mod.} \left\{ \frac{1}{6} \operatorname{tg} \alpha^2 - \frac{19}{180} \operatorname{tg} \alpha^4 + \frac{443}{5670} \operatorname{tg} \alpha^6 - \frac{7073}{113400} \operatorname{tg} \alpha^8 + \dots \right\},$$

für die grösseren Werthe, bei welchen die vorstehende Reihe keine ausreichende Convergenz abgab, nach der Form:

$$\log \lambda = \operatorname{Mod.} \left\{ \frac{1}{6} \alpha^2 + \frac{1}{180} \alpha^4 + \frac{1}{2835} \alpha^6 + \frac{1}{37800} \alpha^8 + \frac{1}{467775} \alpha^{10} + \dots \right\}.$$

Die Tafel selbst ist auf 7 Stellen abgekürzt hier mitgetheilt; die letzten Stellen werden den ergriffenen Massnahmen zufolge selten um eine halbe Einheit fehlerhaft sein; um eine hinreichend bequeme Interpolation zu ermöglichen, wurden die Werthe von  $\log \lambda$  dort, wo es nöthig war, für jeden 10000. Theil des Argumentes angesetzt. Neben jedem Werthe von  $\log \lambda$  findet man den Logarithmus des Factors  $y$ , der bestimmt ist nach:

$$y = \frac{f}{\operatorname{tg} \alpha^2},$$

Die Zusammenstellung der für die Rechnung nöthigen Vorschriften ist somit folgende: Man berechnet mittelst der gegebenen Werthe von  $M$  und  $e$  die Werthe:

$$\log e \sin M \quad \text{und} \quad \log e \cos M.$$

Mit dem Argumente  $\log e \sin M$  nimmt man aus der Tafel den Näherungswerth  $\log \lambda_0$  und berechnet:

$$\operatorname{tg}(E-M+x) = \frac{e \sin M}{\lambda_0 - e \cos M} = \frac{e \sin M}{N} \tag{8}$$

Darauf entlehnt man mit dem Argumente  $\log \operatorname{tg}(E-M+x)$  aus der Tafel den Werth  $\log \lambda_1$  und schreibt hiebei den zugehörigen Werth von  $\log y$  heraus. Dann ist:

$$f = y \operatorname{tg}(E-M+x)^2$$

$$\log \lambda_2 = \log \lambda_1 - (\log \lambda_1 - \log \lambda_0) \frac{\frac{f}{N}}{1 + \frac{f}{N}} \tag{9}$$

Meist wird man  $1 + \frac{f}{N}$  der Einheit gleich setzen dürfen. Der Werth von  $\log \lambda_2$  wird als  $\lambda_0$  in die Formel 8) eingesetzt und die Rechnung wieder durchgeführt und so lange wiederholt, bis in den Zahlen keine Änderung mehr auftritt; eine mehrfache Wiederholung der Rechnung aber wird meist nicht nöthig sein, wie dies die folgenden Beispiele zeigen.

Es sei:

$$M = 332^\circ 28' 54'' 77, \quad \log e = 9.389 7262;$$

daher:

$$\log \sin M = 9.664 6693, \quad \log \cos M = 9.947 8574, \quad \log e \sin M = 9.054 3955, \quad \log e \cos M = 9.337 5836.$$

Mit dem Argumente  $9.0544$  wird aus der Tafel der Werth von  $\log \lambda_0$  gefunden und erhalten:

## I. Versuch.

|   |   |
|---|---|
| $\log \lambda_0 = 0.000\ 9224$                    | $\log g = 9.513$                          |
| Subtr.: $= 0.106\ 2941$                           | $2 \log \operatorname{tg}(E-M+x) = 8.320$ |
| $\log N = 9.894\ 6283$                            | $\log f = 7.833$                          |
| $\log \{\operatorname{tg}(E-M+x)\} = 9.159\ 7672$ | $\log(f:N) = 7.938$                       |
| also: $\log \lambda_1 = 0.001\ 4910$              | $\log D = 3.755$                          |
| $D = \log \lambda_1 - \log \lambda_0 = + 5686$    | $\partial \log \lambda_1 = -49$           |

Bei der Kleinheit der Excentricität genügte es völlig, von den oben angegebenen Vereinfachungen Gebrauch zu machen, nämlich  $(1+f):N$  der Einheit gleich zu setzen; es wird also:

|                                |   |
|--------------------------------|---|
| $\log \lambda_0 = 0.001\ 4861$ | $\log N = 9.895\ 3482$                      |
| Subtr.: $= 0.106\ 1379$        | $\log \operatorname{tg}(E-M) = 9.159\ 0473$ |

Da der Werth von  $\log \lambda$ , der sich auf der Tafel zu dem eben gefundenen Werthe von  $\log \operatorname{tg}(E-M)$  findet,  $0.0014861$  ist, also mit dem Anfangswerthe übereinstimmt, so erscheint somit die Rechnung der Versuche beendet, und es hat in der That schon der erste Versuch den wahren Werth von  $\log \lambda_0$  ergeben.

Es findet sich also schliesslich  $E-M = -8^\circ 12' 25'' 27$  und somit  $E = 224^\circ 16' 29'' 50$ .

Um das vorstehende Verfahren bei einem extremen Werthe für die Excentricität zu erläutern, will ich ein Beispiel dem Faye'schen Cometen entlehnen. Es sei:

$$M = 34^\circ 19' 36'' 14, \quad \log e = 9.744\ 2503,$$

daher:

$$\log \sin M = 9.751\ 2106, \quad \log \cos M = 9.916\ 8936, \quad \log e \sin M = 9.495\ 4609, \quad \log e \cos M = 9.661\ 1439.$$

Im ersten Versuche wurde  $\log \lambda_0$  mit dem Argumente  $\log e \sin M$  der Tafel entlehnt, und bei den Differentialformeln die strengen Ausdrücke benützt; um nicht zu viel Raum in Anspruch zu nehmen, ist die Rechnung für die einzelnen Versuche neben einander gestellt.

|                                   | Versuch I. | Versuch II. | Versuch III. |
|-----------------------------------|------------|-------------|--------------|
| $\log \lambda_0$                  | 9.006 6785 | 0.017 6055  | 0.017 6954   |
| Subtr.:                           | 0.260 6651 | 0.251 8794  | 0.251 8087   |
| $\log N$                          | 9.746 0134 | 9.765 7261  | 9.765 8867   |
| $\log \operatorname{tg}(E-M+x)$   | 9.749 4475 | 9.729 7348  | 9.729 5742   |
| $\log \lambda_1$                  | 0.019 1225 | 0.017 7066  | 0.017 6955   |
| $D$                               | +12 4440   | + 1011      | + 1.         |
| $\log g$                          | 9.390      | 9.401       |              |
| $2 \log \operatorname{tg}(E-M+x)$ | 9.499      | 9.459       |              |
| $\log f$                          | 8.889      | 8.860       |              |
| $\log(f:N)$                       | 9.143      | 9.094       |              |
| $\log(1+f:N)$                     | 0.057      | 0.051       |              |
| $\log F$                          | 9.086      | 9.043       |              |
| $\log D$                          | 5.095      | 3.005       |              |
| $\partial \log \lambda_1$         | -15170     | -112        |              |

Wie man sieht, hat der zweite Versuch den wahren Werth von  $\log \lambda_0$  ergeben, denn der Beginn des dritten Versuches zeigt, dass der Werth  $\log \lambda_0$  mit  $\log \lambda_1$  innerhalb der Unsicherheit einer siebenstelligen Rechnung übereinstimmt; führt man nun mit dem Werthe  $\log \lambda_0 = 0.017\ 6955$  die Rechnung zu Ende, so erhält man:

|                               |                        |
|-------------------------------|------------------------|
| $\log \operatorname{Subtr.}$  | 0.251 8086             |
| $\log N$                      | 9.765 8869             |
| $\log \operatorname{tg}(E-M)$ | 9.729 5740             |
| $E-M$                         | $28^\circ 12' 49'' 66$ |
| $E$                           | $62^\circ 32' 25''.80$ |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |       |       |      |       |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|-------|-------|------|-------|
| 6.00                 | 0.000                  | 0000  | 0     | 9.523                | 6.50                   | 0.000 | 0000  | 0                    | 9.523                  | 7.00  | 0.000 | 0001                 | 0                      | 9.523 | 7.50  | 0.000 | 0007  | +1   | 9.523 |
| 01                   | 0000                   | 0     | 523   | 51                   | 0000                   | 0     | 523   | 01                   | 0001                   | 0     | 523   | 51                   | 0008                   | 0     | 523   | 51    | 0008  | 0    | 523   |
| 02                   | 0000                   | 0     | 523   | 52                   | 0000                   | 0     | 523   | 02                   | 0001                   | 0     | 523   | 52                   | 0008                   | 0     | 523   | 52    | 0008  | 0    | 523   |
| 03                   | 0000                   | 0     | 523   | 53                   | 0000                   | 0     | 523   | 03                   | 0001                   | 0     | 523   | 53                   | 0008                   | +1    | 523   | 53    | 0008  | +1   | 523   |
| 04                   | 0000                   | 0     | 523   | 54                   | 0000                   | 0     | 523   | 04                   | 0001                   | 0     | 523   | 54                   | 0009                   | 0     | 523   | 54    | 0009  | 0    | 523   |
| 0.05                 | 0.000                  | 0000  | 0     | 9.523                | 6.55                   | 0.000 | 0000  | 0                    | 9.523                  | 7.05  | 0.000 | 0001                 | 0                      | 9.523 | 7.55  | 0.000 | 0009  | +1   | 9.523 |
| 06                   | 0000                   | 0     | 523   | 56                   | 0000                   | 0     | 523   | 06                   | 0001                   | 0     | 523   | 56                   | 0010                   | 0     | 523   | 56    | 0010  | 0    | 523   |
| 07                   | 0000                   | 0     | 523   | 57                   | 0000                   | 0     | 523   | 07                   | 0001                   | 0     | 523   | 57                   | 0010                   | 0     | 523   | 57    | 0010  | 0    | 523   |
| 08                   | 0000                   | 0     | 523   | 58                   | 0000                   | 0     | 523   | 08                   | 0001                   | 0     | 523   | 58                   | 0010                   | +1    | 523   | 58    | 0010  | +1   | 523   |
| 09                   | 0000                   | 0     | 523   | 59                   | 0000                   | 0     | 523   | 09                   | 0001                   | 0     | 523   | 59                   | 0011                   | 0     | 523   | 59    | 0011  | 0    | 523   |
| 0.10                 | 0.000                  | 0000  | 0     | 9.523                | 6.60                   | 0.000 | 0000  | 0                    | 9.523                  | 7.10  | 0.000 | 0001                 | 0                      | 9.523 | 7.60  | 0.000 | 0011  | +1   | 9.523 |
| 11                   | 0000                   | 0     | 523   | 61                   | 0000                   | 0     | 523   | 11                   | 0001                   | 0     | 523   | 61                   | 0012                   | +1    | 523   | 61    | 0012  | +1   | 523   |
| 12                   | 0000                   | 0     | 523   | 62                   | 0000                   | 0     | 523   | 12                   | 0001                   | 0     | 523   | 62                   | 0013                   | 0     | 523   | 62    | 0013  | 0    | 523   |
| 13                   | 0000                   | 0     | 523   | 63                   | 0000                   | 0     | 523   | 13                   | 0001                   | 0     | 523   | 63                   | 0013                   | 0     | 523   | 63    | 0013  | 0    | 523   |
| 14                   | 0000                   | 0     | 523   | 64                   | 0000                   | 0     | 523   | 14                   | 0001                   | 0     | 523   | 64                   | 0014                   | +1    | 523   | 64    | 0014  | +1   | 523   |
| 0.15                 | 0.000                  | 0000  | 0     | 9.523                | 6.65                   | 0.000 | 0000  | 0                    | 9.523                  | 7.15  | 0.000 | 0001                 | +1                     | 9.523 | 7.65  | 0.000 | 0014  | +1   | 9.523 |
| 16                   | 0000                   | 0     | 523   | 66                   | 0000                   | 0     | 523   | 16                   | 0002                   | 0     | 523   | 66                   | 0015                   | +1    | 523   | 66    | 0015  | +1   | 523   |
| 17                   | 0000                   | 0     | 523   | 67                   | 0000                   | 0     | 523   | 17                   | 0002                   | 0     | 523   | 67                   | 0016                   | 0     | 523   | 67    | 0016  | 0    | 523   |
| 18                   | 0000                   | 0     | 523   | 68                   | 0000                   | 0     | 523   | 18                   | 0002                   | 0     | 523   | 68                   | 0017                   | +1    | 523   | 68    | 0017  | +1   | 523   |
| 19                   | 0000                   | 0     | 523   | 69                   | 0000                   | 0     | 523   | 19                   | 0002                   | 0     | 523   | 69                   | 0017                   | +1    | 523   | 69    | 0017  | +1   | 523   |
| 0.20                 | 0.000                  | 0000  | 0     | 9.523                | 6.70                   | 0.000 | 0000  | 0                    | 9.523                  | 7.20  | 0.000 | 0002                 | 0                      | 9.523 | 7.70  | 0.000 | 0018  | +1   | 9.523 |
| 21                   | 0000                   | 0     | 523   | 71                   | 0000                   | 0     | 523   | 21                   | 0002                   | 0     | 523   | 71                   | 0019                   | +1    | 523   | 71    | 0019  | +1   | 523   |
| 22                   | 0000                   | 0     | 523   | 72                   | 0000                   | 0     | 523   | 22                   | 0002                   | 0     | 523   | 72                   | 0020                   | +1    | 523   | 72    | 0020  | +1   | 523   |
| 23                   | 0000                   | 0     | 523   | 73                   | 0000                   | 0     | 523   | 23                   | 0002                   | 0     | 523   | 73                   | 0021                   | +1    | 523   | 73    | 0021  | +1   | 523   |
| 24                   | 0000                   | 0     | 523   | 74                   | 0000                   | 0     | 523   | 24                   | 0002                   | 0     | 523   | 74                   | 0022                   | +1    | 523   | 74    | 0022  | +1   | 523   |
| 0.25                 | 0.000                  | 0000  | 0     | 9.523                | 6.75                   | 0.000 | 0000  | 0                    | 9.523                  | 7.25  | 0.000 | 0002                 | 0                      | 9.523 | 7.75  | 0.000 | 0023  | +1   | 9.523 |
| 26                   | 0000                   | 0     | 523   | 76                   | 0000                   | 0     | 523   | 26                   | 0002                   | +1    | 523   | 76                   | 0024                   | +1    | 523   | 76    | 0024  | +1   | 523   |
| 27                   | 0000                   | 0     | 523   | 77                   | 0000                   | 0     | 523   | 27                   | 0003                   | 0     | 523   | 77                   | 0025                   | +1    | 523   | 77    | 0025  | +1   | 523   |
| 28                   | 0000                   | 0     | 523   | 78                   | 0000                   | 0     | 523   | 28                   | 0003                   | 0     | 523   | 78                   | 0026                   | +2    | 523   | 78    | 0026  | +2   | 523   |
| 29                   | 0000                   | 0     | 523   | 79                   | 0000                   | 0     | 523   | 29                   | 0003                   | 0     | 523   | 79                   | 0028                   | +1    | 523   | 79    | 0028  | +1   | 523   |
| 0.30                 | 0.000                  | 0000  | 0     | 9.523                | 6.80                   | 0.000 | 0000  | 0                    | 9.523                  | 7.30  | 0.000 | 0003                 | 0                      | 9.523 | 7.80  | 0.000 | 0029  | +1   | 9.523 |
| 31                   | 0000                   | 0     | 523   | 81                   | 0000                   | 0     | 523   | 31                   | 0003                   | 0     | 523   | 81                   | 0030                   | +2    | 523   | 81    | 0030  | +2   | 523   |
| 32                   | 0000                   | 0     | 523   | 82                   | 0000                   | 0     | 523   | 32                   | 0003                   | 0     | 523   | 82                   | 0032                   | +1    | 523   | 82    | 0032  | +1   | 523   |
| 33                   | 0000                   | 0     | 523   | 83                   | 0000                   | 0     | 523   | 33                   | 0003                   | 0     | 523   | 83                   | 0033                   | +2    | 523   | 83    | 0033  | +2   | 523   |
| 34                   | 0000                   | 0     | 523   | 84                   | 0000                   | 0     | 523   | 34                   | 0003                   | +1    | 523   | 84                   | 0035                   | +1    | 523   | 84    | 0035  | +1   | 523   |
| 0.35                 | 0.000                  | 0000  | 0     | 9.523                | 6.85                   | 0.000 | 0000  | 0                    | 9.523                  | 7.35  | 0.000 | 0004                 | 0                      | 9.523 | 7.85  | 0.000 | 0036  | +2   | 9.523 |
| 36                   | 0000                   | 0     | 523   | 86                   | 0000                   | 0     | 523   | 36                   | 0004                   | 0     | 523   | 86                   | 0038                   | +2    | 523   | 86    | 0038  | +2   | 523   |
| 37                   | 0000                   | 0     | 523   | 87                   | 0000                   | 0     | 523   | 37                   | 0004                   | 0     | 523   | 87                   | 0040                   | +2    | 523   | 87    | 0040  | +2   | 523   |
| 38                   | 0000                   | 0     | 523   | 88                   | 0000                   | 0     | 523   | 38                   | 0004                   | 0     | 523   | 88                   | 0042                   | +2    | 523   | 88    | 0042  | +2   | 523   |
| 39                   | 0000                   | 0     | 523   | 89                   | 0000                   | 0     | 523   | 39                   | 0004                   | +1    | 523   | 89                   | 0044                   | +2    | 523   | 89    | 0044  | +2   | 523   |
| 0.40                 | 0.000                  | 0000  | 0     | 9.523                | 6.90                   | 0.000 | 0000  | 0                    | 9.523                  | 7.40  | 0.000 | 0005                 | 0                      | 9.523 | 7.90  | 0.000 | 0040  | +2   | 9.523 |
| 41                   | 0000                   | 0     | 523   | 91                   | 0000                   | 0     | 523   | 41                   | 0005                   | 0     | 523   | 91                   | 0048                   | +2    | 523   | 91    | 0048  | +2   | 523   |
| 42                   | 0000                   | 0     | 523   | 92                   | 0001                   | +1    | 523   | 42                   | 0005                   | 0     | 523   | 92                   | 0050                   | +2    | 523   | 92    | 0050  | +2   | 523   |
| 43                   | 0000                   | 0     | 523   | 93                   | 0001                   | 0     | 523   | 43                   | 0005                   | 0     | 523   | 93                   | 0052                   | +3    | 523   | 93    | 0052  | +3   | 523   |
| 44                   | 0000                   | 0     | 523   | 94                   | 0001                   | 0     | 523   | 44                   | 0005                   | +1    | 523   | 94                   | 0055                   | +2    | 523   | 94    | 0055  | +2   | 523   |
| 0.45                 | 0.000                  | 0000  | 0     | 9.523                | 6.95                   | 0.000 | 0001  | 0                    | 9.523                  | 7.45  | 0.000 | 0006                 | 0                      | 9.523 | 7.95  | 0.000 | 0057  | +3   | 9.523 |
| 46                   | 0000                   | 0     | 523   | 96                   | 0001                   | 0     | 523   | 46                   | 0006                   | 0     | 523   | 96                   | 0060                   | +3    | 523   | 96    | 0060  | +3   | 523   |
| 47                   | 0000                   | 0     | 523   | 97                   | 0001                   | 0     | 523   | 47                   | 0006                   | +1    | 523   | 97                   | 0063                   | +3    | 523   | 97    | 0063  | +3   | 523   |
| 48                   | 0000                   | 0     | 523   | 98                   | 0001                   | 0     | 523   | 48                   | 0007                   | 0     | 523   | 98                   | 0066                   | +3    | 523   | 98    | 0066  | +3   | 523   |
| 49                   | 0000                   | 0     | 523   | 99                   | 0001                   | 0     | 523   | 49                   | 0007                   | 0     | 523   | 99                   | 0069                   | +3    | 523   | 99    | 0069  | +3   | 523   |
| 0.50                 | 0.000                  | 0000  | 9.523 | 7.00                 | 0.000                  | 0001  | 9.523 | 7.50                 | 0.000                  | 0007  | 9.523 | 8.00                 | 0.000                  | 0072  | 9.523 | 8.00  | 0.000 | 0072 | 9.523 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |       |      |     |       |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|-------|------|-----|-------|
| S.000                | 0.000                  | 0072  | +1    | 9.523                | S.050                  | 0.000 | 0091  | +1                   | 9.523                  | S.100 | 0.000 | 0115                 | 0                      | 9.523 | S.150 | 0.000 | 0144 | +1  | 9.523 |
| 001                  | 0073                   | 0     | 523   | 051                  | 0092                   | 0     | 523   | 101                  | 0115                   | +1    | 523   | 151                  | 0145                   | +1    | 523   | 0145  | +1   | 523 |       |
| 002                  | 0073                   | 0     | 523   | 052                  | 0092                   | 0     | 523   | 102                  | 0116                   | 0     | 523   | 152                  | 0146                   | 0     | 523   | 0146  | 0    | 523 |       |
| 003                  | 0073                   | +1    | 523   | 053                  | 0092                   | +1    | 523   | 103                  | 0116                   | +1    | 523   | 153                  | 0146                   | +1    | 523   | 0146  | +1   | 523 |       |
| 004                  | 0074                   | 0     | 523   | 054                  | 0093                   | 0     | 523   | 104                  | 0117                   | 0     | 523   | 154                  | 0147                   | +1    | 523   | 0147  | +1   | 523 |       |
| S.005                | 0.000                  | 0074  | 0     | 9.523                | S.055                  | 0.000 | 0093  | +1                   | 9.523                  | S.105 | 0.000 | 0117                 | +1                     | 9.523 | S.155 | 0.000 | 0148 | 0   | 9.523 |
| 006                  | 0074                   | 0     | 523   | 050                  | 0094                   | 0     | 523   | 106                  | 0118                   | 0     | 523   | 150                  | 0148                   | +1    | 523   | 0148  | +1   | 523 |       |
| 007                  | 0075                   | +1    | 523   | 057                  | 0094                   | +1    | 523   | 107                  | 0118                   | +1    | 523   | 157                  | 0149                   | +1    | 523   | 0149  | +1   | 523 |       |
| 008                  | 0075                   | 0     | 523   | 058                  | 0095                   | 0     | 523   | 108                  | 0119                   | +1    | 523   | 158                  | 0150                   | +1    | 523   | 0150  | +1   | 523 |       |
| 009                  | 0075                   | +1    | 523   | 059                  | 0095                   | 0     | 523   | 109                  | 0120                   | 0     | 523   | 159                  | 0151                   | 0     | 523   | 0151  | 0    | 523 |       |
| S.010                | 0.000                  | 0076  | 0     | 9.523                | S.060                  | 0.000 | 0095  | +1                   | 9.523                  | S.110 | 0.000 | 0120                 | +1                     | 9.523 | S.160 | 0.000 | 0151 | +1  | 9.523 |
| 011                  | 0076                   | 0     | 523   | 061                  | 0096                   | 0     | 523   | 111                  | 0121                   | 0     | 523   | 161                  | 0152                   | +1    | 523   | 0152  | +1   | 523 |       |
| 012                  | 0076                   | +1    | 523   | 062                  | 0096                   | +1    | 523   | 112                  | 0121                   | +1    | 523   | 162                  | 0153                   | 0     | 523   | 0153  | 0    | 523 |       |
| 013                  | 0077                   | 0     | 523   | 063                  | 0097                   | 0     | 523   | 113                  | 0122                   | 0     | 523   | 163                  | 0153                   | +1    | 523   | 0153  | +1   | 523 |       |
| 014                  | 0077                   | +1    | 523   | 064                  | 0097                   | +1    | 523   | 114                  | 0122                   | +1    | 523   | 164                  | 0154                   | +1    | 523   | 0154  | +1   | 523 |       |
| S.015                | 0.000                  | 0078  | 0     | 9.523                | S.065                  | 0.000 | 0098  | 0                    | 9.523                  | S.115 | 0.000 | 0123                 | 0                      | 9.523 | S.165 | 0.000 | 0155 | 0   | 9.523 |
| 016                  | 0078                   | 0     | 523   | 066                  | 0098                   | +1    | 523   | 116                  | 0123                   | +1    | 523   | 166                  | 0155                   | +1    | 523   | 0155  | +1   | 523 |       |
| 017                  | 0078                   | +1    | 523   | 067                  | 0099                   | 0     | 523   | 117                  | 0124                   | +1    | 523   | 167                  | 0156                   | +1    | 523   | 0156  | +1   | 523 |       |
| 018                  | 0079                   | 0     | 523   | 068                  | 0099                   | 0     | 523   | 118                  | 0125                   | 0     | 523   | 168                  | 0157                   | +1    | 523   | 0157  | +1   | 523 |       |
| 019                  | 0079                   | 0     | 523   | 069                  | 0099                   | +1    | 523   | 119                  | 0125                   | +1    | 523   | 169                  | 0158                   | 0     | 523   | 0158  | 0    | 523 |       |
| S.020                | 0.000                  | 0079  | +1    | 9.523                | S.070                  | 0.000 | 0100  | 0                    | 9.523                  | S.120 | 0.000 | 0126                 | 0                      | 9.523 | S.170 | 0.000 | 0158 | +1  | 9.523 |
| 021                  | 0080                   | 0     | 523   | 071                  | 0100                   | +1    | 523   | 121                  | 0126                   | +1    | 523   | 171                  | 0159                   | +1    | 523   | 0159  | +1   | 523 |       |
| 022                  | 0080                   | 0     | 523   | 072                  | 0101                   | 0     | 523   | 122                  | 0127                   | 0     | 523   | 172                  | 0160                   | +1    | 523   | 0160  | +1   | 523 |       |
| 023                  | 0080                   | +1    | 523   | 073                  | 0101                   | +1    | 523   | 123                  | 0128                   | 0     | 523   | 173                  | 0161                   | 0     | 523   | 0161  | 0    | 523 |       |
| 024                  | 0081                   | 0     | 523   | 074                  | 0102                   | 0     | 523   | 124                  | 0128                   | +1    | 523   | 174                  | 0161                   | +1    | 523   | 0161  | +1   | 523 |       |
| S.025                | 0.000                  | 0081  | +1    | 9.523                | S.075                  | 0.000 | 0102  | +1                   | 9.523                  | S.125 | 0.000 | 0129                 | 0                      | 9.523 | S.175 | 0.000 | 0162 | +1  | 9.523 |
| 026                  | 0082                   | 0     | 523   | 076                  | 0103                   | +1    | 523   | 126                  | 0129                   | 0     | 523   | 176                  | 0163                   | +1    | 523   | 0163  | +1   | 523 |       |
| 027                  | 0082                   | 0     | 523   | 077                  | 0103                   | 0     | 523   | 127                  | 0130                   | +1    | 523   | 177                  | 0164                   | 0     | 523   | 0164  | 0    | 523 |       |
| 028                  | 0082                   | +1    | 523   | 078                  | 0104                   | 0     | 523   | 128                  | 0130                   | +1    | 523   | 178                  | 0164                   | +1    | 523   | 0164  | +1   | 523 |       |
| 029                  | 0083                   | 0     | 523   | 079                  | 0104                   | +1    | 523   | 129                  | 0131                   | +1    | 523   | 179                  | 0165                   | +1    | 523   | 0165  | +1   | 523 |       |
| S.030                | 0.000                  | 0083  | 0     | 9.523                | S.080                  | 0.000 | 0105  | 0                    | 9.523                  | S.130 | 0.000 | 0132                 | 0                      | 9.523 | S.180 | 0.000 | 0166 | +1  | 9.523 |
| 031                  | 0083                   | +1    | 523   | 081                  | 0105                   | +1    | 523   | 131                  | 0132                   | +1    | 523   | 181                  | 0167                   | 0     | 523   | 0167  | 0    | 523 |       |
| 032                  | 0084                   | 0     | 523   | 082                  | 0106                   | 0     | 523   | 132                  | 0133                   | +1    | 523   | 182                  | 0167                   | +1    | 523   | 0167  | +1   | 523 |       |
| 033                  | 0084                   | +1    | 523   | 083                  | 0106                   | +1    | 523   | 133                  | 0134                   | 0     | 523   | 183                  | 0168                   | +1    | 523   | 0168  | +1   | 523 |       |
| 034                  | 0085                   | 0     | 523   | 084                  | 0107                   | 0     | 523   | 134                  | 0134                   | +1    | 523   | 184                  | 0169                   | +1    | 523   | 0169  | +1   | 523 |       |
| S.035                | 0.000                  | 0085  | 0     | 9.523                | S.085                  | 0.000 | 0107  | +1                   | 9.523                  | S.135 | 0.000 | 0135                 | 0                      | 9.523 | S.185 | 0.000 | 0170 | 0   | 9.523 |
| 036                  | 0085                   | +1    | 523   | 086                  | 0108                   | 0     | 523   | 136                  | 0135                   | +1    | 523   | 186                  | 0170                   | +1    | 523   | 0170  | +1   | 523 |       |
| 037                  | 0086                   | 0     | 523   | 087                  | 0108                   | +1    | 523   | 137                  | 0136                   | +1    | 523   | 187                  | 0171                   | +1    | 523   | 0171  | +1   | 523 |       |
| 038                  | 0086                   | +1    | 523   | 088                  | 0109                   | 0     | 523   | 138                  | 0137                   | 0     | 523   | 188                  | 0172                   | +1    | 523   | 0172  | +1   | 523 |       |
| 039                  | 0087                   | 0     | 523   | 089                  | 0109                   | +1    | 523   | 139                  | 0137                   | +1    | 523   | 189                  | 0173                   | +1    | 523   | 0173  | +1   | 523 |       |
| S.040                | 0.000                  | 0087  | 0     | 9.523                | S.090                  | 0.000 | 0110  | 0                    | 9.523                  | S.140 | 0.000 | 0138                 | +1                     | 9.523 | S.190 | 0.000 | 0174 | 0   | 9.523 |
| 041                  | 0087                   | +1    | 523   | 091                  | 0110                   | +1    | 523   | 141                  | 0139                   | 0     | 523   | 191                  | 0174                   | +1    | 523   | 0174  | +1   | 523 |       |
| 042                  | 0088                   | 0     | 523   | 092                  | 0111                   | 0     | 523   | 142                  | 0139                   | +1    | 523   | 192                  | 0175                   | +1    | 523   | 0175  | +1   | 523 |       |
| 043                  | 0088                   | +1    | 523   | 093                  | 0111                   | +1    | 523   | 143                  | 0140                   | 0     | 523   | 193                  | 0176                   | +1    | 523   | 0176  | +1   | 523 |       |
| 044                  | 0089                   | 0     | 523   | 094                  | 0112                   | 0     | 523   | 144                  | 0140                   | +1    | 523   | 194                  | 0177                   | +1    | 523   | 0177  | +1   | 523 |       |
| S.045                | 0.000                  | 0089  | 0     | 9.523                | S.095                  | 0.000 | 0112  | +1                   | 9.523                  | S.145 | 0.000 | 0141                 | +1                     | 9.523 | S.195 | 0.000 | 0178 | 0   | 9.523 |
| 046                  | 0089                   | 0     | 523   | 096                  | 0113                   | 0     | 523   | 146                  | 0142                   | 0     | 523   | 196                  | 0178                   | +1    | 523   | 0178  | +1   | 523 |       |
| 047                  | 0090                   | +1    | 523   | 097                  | 0113                   | +1    | 523   | 147                  | 0142                   | +1    | 523   | 197                  | 0179                   | +1    | 523   | 0179  | +1   | 523 |       |
| 048                  | 0090                   | 0     | 523   | 098                  | 0114                   | 0     | 523   | 148                  | 0143                   | +1    | 523   | 198                  | 0180                   | +1    | 523   | 0180  | +1   | 523 |       |
| 049                  | 0091                   | +1    | 523   | 099                  | 0114                   | +1    | 523   | 149                  | 0144                   | 0     | 523   | 199                  | 0181                   | +1    | 523   | 0181  | +1   | 523 |       |
| S.050                | 0.000                  | 0091  | 0     | 9.523                | S.100                  | 0.000 | 0115  | 0                    | 9.523                  | S.150 | 0.000 | 0144                 | 0                      | 9.523 | S.200 | 0.000 | 0182 | 0   | 9.523 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|
| 8.200                | 0.000 0182             | +1    | 9.523 | 8.250                | 0.000 0229             | +1    | 9.523 | 8.300                | 0.000 0288             | +1    | 9.523 | 8.350                | 0.000 0363             | +1    | 9.523 |
| 201                  | 0183                   | 0     | 523   | 251                  | 0230                   | +1    | 523   | 301                  | 0289                   | +2    | 523   | 351                  | 0364                   | +2    | 523   |
| 202                  | 0183                   | +1    | 523   | 252                  | 0231                   | +1    | 523   | 302                  | 0291                   | +1    | 523   | 352                  | 0366                   | +2    | 523   |
| 203                  | 0184                   | +1    | 523   | 253                  | 0232                   | +1    | 523   | 303                  | 0292                   | +1    | 523   | 353                  | 0368                   | +1    | 523   |
| 204                  | 0185                   | +1    | 523   | 254                  | 0233                   | +1    | 523   | 304                  | 0293                   | +2    | 523   | 354                  | 0369                   | +2    | 523   |
| 8.205                | 0.000 0186             | +1    | 9.523 | 8.255                | 0.000 0234             | +1    | 9.523 | 8.305                | 0.000 0295             | +1    | 9.523 | 8.355                | 0.000 0371             | +2    | 9.523 |
| 206                  | 0187                   | +1    | 523   | 256                  | 0235                   | +1    | 523   | 306                  | 0296                   | +2    | 523   | 356                  | 0373                   | +2    | 523   |
| 207                  | 0188                   | +1    | 523   | 257                  | 0236                   | +1    | 523   | 307                  | 0298                   | +1    | 523   | 357                  | 0375                   | +1    | 523   |
| 208                  | 0189                   | 0     | 523   | 258                  | 0237                   | +2    | 523   | 308                  | 0299                   | +1    | 523   | 358                  | 0376                   | +2    | 523   |
| 209                  | 0189                   | +1    | 523   | 259                  | 0239                   | +1    | 523   | 309                  | 0300                   | +2    | 523   | 359                  | 0378                   | +2    | 523   |
| 8.210                | 0.000 0190             | +1    | 9.523 | 8.260                | 0.000 0240             | +1    | 9.523 | 8.310                | 0.000 0302             | +1    | 9.523 | 8.360                | 0.000 0380             | +1    | 9.523 |
| 211                  | 0191                   | +1    | 523   | 261                  | 0241                   | +1    | 523   | 311                  | 0303                   | +1    | 523   | 361                  | 0381                   | +2    | 523   |
| 212                  | 0192                   | +1    | 523   | 262                  | 0242                   | +1    | 523   | 312                  | 0304                   | +1    | 523   | 362                  | 0383                   | +2    | 523   |
| 213                  | 0193                   | +1    | 523   | 263                  | 0243                   | +1    | 523   | 313                  | 0306                   | +1    | 523   | 363                  | 0385                   | +2    | 523   |
| 214                  | 0194                   | +1    | 523   | 264                  | 0244                   | +1    | 523   | 314                  | 0307                   | +2    | 523   | 364                  | 0387                   | +2    | 523   |
| 8.215                | 0.000 0195             | +1    | 9.523 | 8.265                | 0.000 0245             | +1    | 9.523 | 8.315                | 0.000 0309             | +1    | 9.523 | 8.365                | 0.000 0389             | +1    | 9.523 |
| 216                  | 0196                   | +1    | 523   | 266                  | 0246                   | +1    | 523   | 316                  | 0310                   | +2    | 523   | 366                  | 0390                   | +2    | 523   |
| 217                  | 0197                   | 0     | 523   | 267                  | 0247                   | +2    | 523   | 317                  | 0312                   | +1    | 523   | 367                  | 0392                   | +2    | 523   |
| 218                  | 0197                   | +1    | 523   | 268                  | 0249                   | +1    | 523   | 318                  | 0313                   | +1    | 523   | 368                  | 0394                   | +2    | 523   |
| 219                  | 0198                   | +1    | 523   | 269                  | 0250                   | +1    | 523   | 319                  | 0314                   | +2    | 523   | 369                  | 0396                   | +2    | 523   |
| 8.220                | 0.000 0199             | +1    | 9.523 | 8.270                | 0.000 0251             | +1    | 9.523 | 8.320                | 0.000 0316             | +1    | 9.523 | 8.370                | 0.000 0398             | +1    | 9.523 |
| 221                  | 0200                   | +1    | 523   | 271                  | 0252                   | +1    | 523   | 321                  | 0317                   | +2    | 523   | 371                  | 0399                   | +2    | 523   |
| 222                  | 0201                   | +1    | 523   | 272                  | 0253                   | +1    | 523   | 322                  | 0319                   | +1    | 523   | 372                  | 0401                   | +2    | 523   |
| 223                  | 0202                   | +1    | 523   | 273                  | 0254                   | +2    | 523   | 323                  | 0320                   | +2    | 523   | 373                  | 0403                   | +2    | 523   |
| 224                  | 0203                   | +1    | 523   | 274                  | 0255                   | +1    | 523   | 324                  | 0322                   | +2    | 523   | 374                  | 0405                   | +2    | 523   |
| 8.225                | 0.000 0204             | +1    | 9.523 | 8.275                | 0.000 0257             | +1    | 9.523 | 8.325                | 0.000 0324             | +1    | 9.523 | 8.375                | 0.000 0407             | +2    | 9.523 |
| 226                  | 0205                   | +1    | 523   | 276                  | 0258                   | +1    | 523   | 326                  | 0325                   | +1    | 523   | 376                  | 0409                   | +2    | 523   |
| 227                  | 0206                   | +1    | 523   | 277                  | 0259                   | +1    | 523   | 327                  | 0326                   | +2    | 523   | 377                  | 0411                   | +2    | 523   |
| 228                  | 0207                   | +1    | 523   | 278                  | 0260                   | +2    | 523   | 328                  | 0328                   | +1    | 523   | 378                  | 0413                   | +1    | 523   |
| 229                  | 0208                   | +1    | 523   | 279                  | 0262                   | +1    | 523   | 329                  | 0329                   | +2    | 523   | 379                  | 0414                   | +2    | 523   |
| 8.230                | 0.000 0209             | +1    | 9.523 | 8.280                | 0.000 0263             | +1    | 9.523 | 8.330                | 0.000 0331             | +1    | 9.523 | 8.380                | 0.000 0416             | +2    | 9.523 |
| 231                  | 0210                   | +1    | 523   | 281                  | 0264                   | +1    | 523   | 331                  | 0332                   | +2    | 523   | 381                  | 0418                   | +2    | 523   |
| 232                  | 0211                   | +1    | 523   | 282                  | 0265                   | +1    | 523   | 332                  | 0334                   | +1    | 523   | 382                  | 0420                   | +2    | 523   |
| 233                  | 0212                   | +1    | 523   | 283                  | 0266                   | +2    | 523   | 333                  | 0335                   | +2    | 523   | 383                  | 0422                   | +2    | 523   |
| 234                  | 0213                   | +1    | 523   | 284                  | 0268                   | +1    | 523   | 334                  | 0337                   | +1    | 523   | 384                  | 0424                   | +2    | 523   |
| 8.235                | 0.000 0214             | +1    | 9.523 | 8.285                | 0.000 0269             | +1    | 9.523 | 8.335                | 0.000 0338             | +2    | 9.523 | 8.385                | 0.000 0426             | +2    | 9.523 |
| 236                  | 0215                   | +1    | 523   | 286                  | 0270                   | +1    | 523   | 336                  | 0340                   | +2    | 523   | 386                  | 0428                   | +2    | 523   |
| 237                  | 0216                   | +1    | 523   | 287                  | 0271                   | +2    | 523   | 337                  | 0342                   | +1    | 523   | 387                  | 0430                   | +2    | 523   |
| 238                  | 0217                   | +1    | 523   | 288                  | 0273                   | +1    | 523   | 338                  | 0343                   | +2    | 523   | 388                  | 0432                   | +2    | 523   |
| 239                  | 0218                   | +1    | 523   | 289                  | 0274                   | +1    | 523   | 339                  | 0345                   | +1    | 523   | 389                  | 0434                   | +2    | 523   |
| 8.240                | 0.000 0219             | +1    | 9.523 | 8.290                | 0.000 0275             | +1    | 9.523 | 8.340                | 0.000 0346             | +2    | 9.523 | 8.390                | 0.000 0436             | +2    | 9.523 |
| 241                  | 0220                   | +1    | 523   | 291                  | 0276                   | +2    | 523   | 341                  | 0348                   | +2    | 523   | 391                  | 0438                   | +2    | 523   |
| 242                  | 0221                   | +1    | 523   | 292                  | 0278                   | +1    | 523   | 342                  | 0350                   | +1    | 523   | 392                  | 0440                   | +2    | 523   |
| 243                  | 0222                   | +1    | 523   | 293                  | 0279                   | +1    | 523   | 343                  | 0351                   | +2    | 523   | 393                  | 0442                   | +2    | 523   |
| 244                  | 0223                   | +1    | 523   | 294                  | 0280                   | +2    | 523   | 344                  | 0353                   | +1    | 523   | 394                  | 0444                   | +2    | 523   |
| 8.245                | 0.000 0224             | +1    | 9.523 | 8.295                | 0.000 0282             | +1    | 9.523 | 8.345                | 0.000 0354             | +2    | 9.523 | 8.395                | 0.000 0446             | +2    | 9.523 |
| 246                  | 0225                   | +1    | 523   | 296                  | 0283                   | +1    | 523   | 346                  | 0356                   | +2    | 523   | 396                  | 0448                   | +2    | 523   |
| 247                  | 0226                   | +1    | 523   | 297                  | 0284                   | +1    | 523   | 347                  | 0358                   | +1    | 523   | 397                  | 0450                   | +2    | 523   |
| 248                  | 0227                   | +1    | 523   | 298                  | 0285                   | +2    | 523   | 348                  | 0359                   | +2    | 523   | 398                  | 0452                   | +2    | 523   |
| 249                  | 0228                   | +1    | 523   | 299                  | 0287                   | +1    | 523   | 349                  | 0361                   | +2    | 523   | 399                  | 0454                   | +3    | 523   |
| 8.250                | 0.000 0229             |       | 9.523 | 8.300                | 0.000 0288             |       | 9.523 | 8.350                | 0.000 0363             |       | 9.523 | 8.400                | 0.000 0457             |       | 9.523 |



| log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |       |      |    |       |
|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|-------|------|----|-------|
| S.400               | 0.000                  | 0457  | +2    | 9.523               | S.450                  | 0.000 | 0575  | +2                  | 9.523                  | S.500 | 0.000 | 0723                | +2                     | 9.522 | S.550 | 0.000 | 0911 | +2 | 9.522 |
| 401                 |                        | 0459  | +2    | 523                 | 451                    |       | 0577  | +3                  | 522                    | 501   |       | 0727                | +4                     | 522   | 551   |       | 0915 | +4 | 522   |
| 402                 |                        | 0461  | +2    | 523                 | 452                    |       | 0580  | +3                  | 522                    | 502   |       | 0730                | +3                     | 522   | 552   |       | 0919 | +4 | 522   |
| 403                 |                        | 0463  | +2    | 523                 | 453                    |       | 0583  | +2                  | 522                    | 503   |       | 0733                | +4                     | 522   | 553   |       | 0923 | +4 | 522   |
| 404                 |                        | 0465  | +2    | 523                 | 454                    |       | 0585  | +3                  | 522                    | 504   |       | 0737                | +3                     | 522   | 554   |       | 0927 | +5 | 522   |
| S.405               | 0.000                  | 0467  | +2    | 9.523               | S.455                  | 0.000 | 0588  | +3                  | 9.522                  | S.505 | 0.000 | 0740                | +4                     | 9.522 | S.555 | 0.000 | 0932 | +4 | 9.522 |
| 406                 |                        | 0469  | +2    | 523                 | 456                    |       | 0591  | +2                  | 522                    | 506   |       | 0744                | +3                     | 522   | 556   |       | 0936 | +4 | 522   |
| 407                 |                        | 0471  | +3    | 523                 | 457                    |       | 0593  | +3                  | 522                    | 507   |       | 0747                | +3                     | 523   | 557   |       | 0940 | +5 | 522   |
| 408                 |                        | 0474  | +2    | 523                 | 458                    |       | 0596  | +3                  | 522                    | 508   |       | 0750                | +3                     | 522   | 558   |       | 0945 | +4 | 522   |
| 409                 |                        | 0476  | +2    | 523                 | 459                    |       | 0599  | +3                  | 522                    | 509   |       | 0754                | +3                     | 522   | 559   |       | 0949 | +4 | 522   |
| S.410               | 0.000                  | 0478  | +2    | 9.523               | S.460                  | 0.000 | 0602  | +3                  | 9.522                  | S.510 | 0.000 | 0757                | +4                     | 9.522 | S.560 | 0.000 | 0953 | +5 | 9.522 |
| 411                 |                        | 0480  | +2    | 523                 | 461                    |       | 0605  | +2                  | 522                    | 511   |       | 0761                | +3                     | 522   | 561   |       | 0958 | +4 | 522   |
| 412                 |                        | 0482  | +3    | 523                 | 462                    |       | 0607  | +3                  | 522                    | 512   |       | 0764                | +4                     | 522   | 562   |       | 0962 | +5 | 522   |
| 413                 |                        | 0485  | +2    | 523                 | 463                    |       | 0610  | +3                  | 522                    | 513   |       | 0768                | +4                     | 522   | 563   |       | 0967 | +4 | 522   |
| 414                 |                        | 0487  | +2    | 523                 | 464                    |       | 0613  | +3                  | 522                    | 514   |       | 0772                | +3                     | 522   | 564   |       | 0971 | +5 | 522   |
| S.415               | 0.000                  | 0489  | +2    | 9.523               | S.465                  | 0.000 | 0616  | +3                  | 9.522                  | S.515 | 0.000 | 0775                | +4                     | 9.522 | S.565 | 0.000 | 0976 | +5 | 9.522 |
| 416                 |                        | 0491  | +3    | 523                 | 466                    |       | 0619  | +2                  | 522                    | 516   |       | 0779                | +3                     | 522   | 566   |       | 0980 | +4 | 522   |
| 417                 |                        | 0494  | +2    | 523                 | 467                    |       | 0621  | +3                  | 522                    | 517   |       | 0782                | +3                     | 522   | 567   |       | 0985 | +4 | 522   |
| 418                 |                        | 0496  | +2    | 523                 | 468                    |       | 0624  | +3                  | 522                    | 518   |       | 0786                | +3                     | 522   | 568   |       | 0989 | +5 | 522   |
| 419                 |                        | 0498  | +3    | 523                 | 469                    |       | 0627  | +3                  | 522                    | 519   |       | 0789                | +4                     | 522   | 569   |       | 0994 | +4 | 522   |
| S.420               | 0.000                  | 0501  | +2    | 9.523               | S.470                  | 0.000 | 0630  | +3                  | 9.522                  | S.520 | 0.000 | 0793                | +4                     | 9.522 | S.570 | 0.000 | 0998 | +5 | 9.522 |
| 421                 |                        | 0503  | +2    | 523                 | 471                    |       | 0633  | +3                  | 522                    | 521   |       | 0797                | +3                     | 522   | 571   |       | 1003 | +5 | 522   |
| 422                 |                        | 0505  | +3    | 523                 | 472                    |       | 0636  | +3                  | 522                    | 522   |       | 0800                | +4                     | 522   | 572   |       | 1008 | +4 | 522   |
| 423                 |                        | 0508  | +2    | 523                 | 473                    |       | 0639  | +3                  | 522                    | 523   |       | 0804                | +4                     | 522   | 573   |       | 1012 | +5 | 522   |
| 424                 |                        | 0510  | +2    | 523                 | 474                    |       | 0642  | +3                  | 522                    | 524   |       | 0808                | +4                     | 522   | 574   |       | 1017 | +5 | 522   |
| S.425               | 0.000                  | 0512  | +3    | 9.523               | S.475                  | 0.000 | 0645  | +3                  | 9.522                  | S.525 | 0.000 | 0812                | +3                     | 9.522 | S.575 | 0.000 | 1022 | +4 | 9.522 |
| 426                 |                        | 0515  | +2    | 523                 | 476                    |       | 0648  | +3                  | 522                    | 526   |       | 0815                | +4                     | 522   | 576   |       | 1026 | +5 | 522   |
| 427                 |                        | 0517  | +2    | 523                 | 477                    |       | 0651  | +3                  | 522                    | 527   |       | 0819                | +4                     | 522   | 577   |       | 1031 | +5 | 522   |
| 428                 |                        | 0519  | +3    | 523                 | 478                    |       | 0654  | +3                  | 522                    | 528   |       | 0823                | +4                     | 522   | 578   |       | 1036 | +4 | 522   |
| 429                 |                        | 0522  | +2    | 523                 | 479                    |       | 0657  | +3                  | 522                    | 529   |       | 0827                | +3                     | 522   | 579   |       | 1040 | +5 | 522   |
| S.430               | 0.000                  | 0524  | +3    | 9.523               | S.480                  | 0.000 | 0660  | +3                  | 9.522                  | S.530 | 0.000 | 0830                | +4                     | 9.522 | S.580 | 0.000 | 1045 | +5 | 9.522 |
| 431                 |                        | 0527  | +2    | 523                 | 481                    |       | 0663  | +3                  | 522                    | 531   |       | 0834                | +4                     | 522   | 581   |       | 1050 | +5 | 522   |
| 432                 |                        | 0529  | +2    | 523                 | 482                    |       | 0666  | +3                  | 522                    | 532   |       | 0838                | +4                     | 522   | 582   |       | 1055 | +5 | 522   |
| 433                 |                        | 0531  | +3    | 523                 | 483                    |       | 0669  | +3                  | 522                    | 533   |       | 0842                | +4                     | 522   | 583   |       | 1060 | +5 | 522   |
| 434                 |                        | 0534  | +2    | 523                 | 484                    |       | 0672  | +3                  | 522                    | 534   |       | 0846                | +4                     | 522   | 584   |       | 1065 | +5 | 522   |
| S.435               | 0.000                  | 0536  | +3    | 9.523               | S.485                  | 0.000 | 0675  | +3                  | 9.522                  | S.535 | 0.000 | 0850                | +4                     | 9.522 | S.585 | 0.000 | 1070 | +5 | 9.522 |
| 436                 |                        | 0539  | +2    | 523                 | 486                    |       | 0678  | +3                  | 522                    | 536   |       | 0854                | +4                     | 522   | 586   |       | 1075 | +5 | 522   |
| 437                 |                        | 0541  | +3    | 523                 | 487                    |       | 0681  | +3                  | 522                    | 537   |       | 0858                | +4                     | 522   | 587   |       | 1080 | +4 | 522   |
| 438                 |                        | 0544  | +2    | 523                 | 488                    |       | 0684  | +4                  | 522                    | 538   |       | 0862                | +4                     | 522   | 588   |       | 1084 | +5 | 522   |
| 439                 |                        | 0546  | +3    | 523                 | 489                    |       | 0688  | +3                  | 522                    | 539   |       | 0866                | +4                     | 522   | 589   |       | 1089 | +6 | 522   |
| S.440               | 0.000                  | 0549  | +2    | 9.523               | S.490                  | 0.000 | 0691  | +3                  | 9.522                  | S.540 | 0.000 | 0870                | +4                     | 9.522 | S.590 | 0.000 | 1095 | +5 | 9.522 |
| 441                 |                        | 0551  | +3    | 523                 | 491                    |       | 0694  | +3                  | 522                    | 541   |       | 0874                | +4                     | 522   | 591   |       | 1100 | +5 | 522   |
| 442                 |                        | 0554  | +2    | 523                 | 492                    |       | 0697  | +3                  | 522                    | 542   |       | 0878                | +4                     | 522   | 592   |       | 1105 | +5 | 522   |
| 443                 |                        | 0556  | +3    | 523                 | 493                    |       | 0700  | +4                  | 522                    | 543   |       | 0882                | +4                     | 522   | 593   |       | 1110 | +5 | 522   |
| 444                 |                        | 0559  | +3    | 523                 | 494                    |       | 0704  | +3                  | 522                    | 544   |       | 0886                | +4                     | 522   | 594   |       | 1115 | +5 | 522   |
| S.445               | 0.000                  | 0562  | +2    | 9.523               | S.495                  | 0.000 | 0707  | +3                  | 9.522                  | S.545 | 0.000 | 0890                | +4                     | 9.522 | S.595 | 0.000 | 1120 | +5 | 9.522 |
| 446                 |                        | 0564  | +3    | 523                 | 496                    |       | 0710  | +3                  | 522                    | 546   |       | 0894                | +4                     | 522   | 596   |       | 1125 | +5 | 522   |
| 447                 |                        | 0567  | +2    | 523                 | 497                    |       | 0713  | +4                  | 522                    | 547   |       | 0898                | +4                     | 522   | 597   |       | 1130 | +6 | 522   |
| 448                 |                        | 0569  | +3    | 523                 | 498                    |       | 0717  | +3                  | 522                    | 548   |       | 0902                | +4                     | 522   | 598   |       | 1136 | +5 | 522   |
| 449                 |                        | 0572  | +3    | 523                 | 499                    |       | 0720  | +3                  | 522                    | 549   |       | 0906                | +5                     | 522   | 599   |       | 1141 | +5 | 522   |
| S.450               | 0.000                  | 0575  |       | 9.523               | S.500                  | 0.000 | 0723  |                     | 9.522                  | S.550 | 0.000 | 0911                |                        | 9.522 | S.600 | 0.000 | 1146 |    | 9.522 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |       |      |     |       |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|-------|------|-----|-------|
| 8.600                | 0.000                  | 1146  | +5    | 9.522                | 8.650                  | 0.000 | 1442  | +7                   | 9.522                  | 8.700 | 0.000 | 1815                 | +9                     | 9.522 | 8.750 | 0.000 | 2284 | +11 | 9.521 |
| 601                  | 1151                   | +6    | 522   | 651                  | 1449                   | +7    | 522   | 701                  | 1824                   | +8    | 522   | 751                  | 2295                   | +10   | 521   |       |      |     |       |
| 602                  | 1157                   | +5    | 522   | 652                  | 1456                   | +6    | 522   | 702                  | 1832                   | +8    | 522   | 752                  | 2305                   | +11   | 521   |       |      |     |       |
| 603                  | 1162                   | +5    | 522   | 653                  | 1462                   | +7    | 522   | 703                  | 1840                   | +9    | 522   | 753                  | 2316                   | +11   | 521   |       |      |     |       |
| 604                  | 1167                   | +6    | 522   | 654                  | 1469                   | +7    | 522   | 704                  | 1849                   | +8    | 522   | 754                  | 2327                   | +10   | 521   |       |      |     |       |
| 8.605                | 0.000                  | 1173  | +5    | 9.522                | 8.655                  | 0.000 | 1476  | +7                   | 9.522                  | 8.705 | 0.000 | 1857                 | +9                     | 9.522 | 8.755 | 0.000 | 2337 | +11 | 9.521 |
| 606                  | 1178                   | +6    | 522   | 656                  | 1483                   | +7    | 522   | 706                  | 1866                   | +9    | 522   | 756                  | 2348                   | +11   | 521   |       |      |     |       |
| 607                  | 1184                   | +5    | 522   | 657                  | 1490                   | +6    | 522   | 707                  | 1875                   | +8    | 522   | 757                  | 2359                   | +11   | 521   |       |      |     |       |
| 608                  | 1189                   | +5    | 522   | 658                  | 1496                   | +7    | 522   | 708                  | 1883                   | +9    | 522   | 758                  | 2370                   | +11   | 521   |       |      |     |       |
| 609                  | 1194                   | +6    | 522   | 659                  | 1503                   | +7    | 522   | 709                  | 1892                   | +9    | 522   | 759                  | 2381                   | +11   | 521   |       |      |     |       |
| 8.610                | 0.000                  | 1200  | +6    | 9.522                | 8.660                  | 0.000 | 1510  | +7                   | 9.522                  | 8.710 | 0.000 | 1901                 | +8                     | 9.522 | 8.760 | 0.000 | 2392 | +11 | 9.521 |
| 611                  | 1206                   | +5    | 522   | 661                  | 1517                   | +7    | 522   | 711                  | 1909                   | +9    | 522   | 761                  | 2403                   | +11   | 521   |       |      |     |       |
| 612                  | 1211                   | +6    | 522   | 662                  | 1524                   | +7    | 522   | 712                  | 1918                   | +9    | 522   | 762                  | 2414                   | +11   | 521   |       |      |     |       |
| 613                  | 1217                   | +5    | 522   | 663                  | 1531                   | +7    | 522   | 713                  | 1927                   | +9    | 522   | 763                  | 2425                   | +11   | 521   |       |      |     |       |
| 614                  | 1222                   | +6    | 522   | 664                  | 1538                   | +7    | 522   | 714                  | 1936                   | +9    | 522   | 764                  | 2436                   | +11   | 521   |       |      |     |       |
| 8.615                | 0.000                  | 1228  | +6    | 9.522                | 8.665                  | 0.000 | 1545  | +8                   | 9.522                  | 8.715 | 0.000 | 1945                 | +9                     | 9.522 | 8.765 | 0.000 | 2447 | +12 | 9.521 |
| 616                  | 1234                   | +5    | 522   | 666                  | 1553                   | +7    | 522   | 716                  | 1954                   | +9    | 522   | 766                  | 2459                   | +11   | 521   |       |      |     |       |
| 617                  | 1239                   | +6    | 522   | 667                  | 1560                   | +7    | 522   | 717                  | 1963                   | +9    | 522   | 767                  | 2470                   | +11   | 521   |       |      |     |       |
| 618                  | 1245                   | +6    | 522   | 668                  | 1567                   | +7    | 522   | 718                  | 1972                   | +9    | 522   | 768                  | 2481                   | +12   | 521   |       |      |     |       |
| 619                  | 1251                   | +5    | 522   | 669                  | 1574                   | +7    | 522   | 719                  | 1981                   | +9    | 522   | 769                  | 2493                   | +11   | 521   |       |      |     |       |
| 8.620                | 0.000                  | 1256  | +6    | 9.522                | 8.670                  | 0.000 | 1581  | +8                   | 9.522                  | 8.720 | 0.000 | 1990                 | +9                     | 9.522 | 8.770 | 0.000 | 2504 | +12 | 9.521 |
| 621                  | 1262                   | +6    | 522   | 671                  | 1589                   | +7    | 522   | 721                  | 1999                   | +9    | 522   | 771                  | 2516                   | +11   | 521   |       |      |     |       |
| 622                  | 1268                   | +6    | 522   | 672                  | 1596                   | +7    | 522   | 722                  | 2008                   | +9    | 522   | 772                  | 2527                   | +12   | 521   |       |      |     |       |
| 623                  | 1274                   | +6    | 522   | 673                  | 1603                   | +8    | 522   | 723                  | 2018                   | +10   | 522   | 773                  | 2539                   | +12   | 521   |       |      |     |       |
| 624                  | 1280                   | +6    | 522   | 674                  | 1611                   | +7    | 522   | 724                  | 2027                   | +9    | 522   | 774                  | 2551                   | +11   | 521   |       |      |     |       |
| 8.625                | 0.000                  | 1286  | +6    | 9.522                | 8.675                  | 0.000 | 1618  | +8                   | 9.522                  | 8.725 | 0.000 | 2036                 | +10                    | 9.522 | 8.775 | 0.000 | 2562 | +12 | 9.521 |
| 626                  | 1292                   | +6    | 522   | 676                  | 1626                   | +8    | 522   | 726                  | 2046                   | +10   | 522   | 776                  | 2574                   | +12   | 521   |       |      |     |       |
| 627                  | 1298                   | +6    | 522   | 677                  | 1633                   | +7    | 522   | 727                  | 2055                   | +9    | 522   | 777                  | 2586                   | +12   | 521   |       |      |     |       |
| 628                  | 1304                   | +6    | 522   | 678                  | 1641                   | +7    | 522   | 728                  | 2065                   | +9    | 522   | 778                  | 2598                   | +12   | 521   |       |      |     |       |
| 629                  | 1310                   | +6    | 522   | 679                  | 1648                   | +8    | 522   | 729                  | 2074                   | +10   | 522   | 779                  | 2610                   | +12   | 521   |       |      |     |       |
| 8.630                | 0.000                  | 1316  | +6    | 9.522                | 8.680                  | 0.000 | 1656  | +7                   | 9.522                  | 8.730 | 0.000 | 2084                 | +9                     | 9.522 | 8.780 | 0.000 | 2622 | +12 | 9.521 |
| 631                  | 1322                   | +6    | 522   | 681                  | 1663                   | +8    | 522   | 731                  | 2093                   | +10   | 521   | 781                  | 2634                   | +12   | 521   |       |      |     |       |
| 632                  | 1328                   | +6    | 522   | 682                  | 1671                   | +8    | 522   | 732                  | 2103                   | +10   | 521   | 782                  | 2646                   | +12   | 521   |       |      |     |       |
| 633                  | 1334                   | +6    | 522   | 683                  | 1679                   | +8    | 522   | 733                  | 2113                   | +10   | 521   | 783                  | 2658                   | +12   | 521   |       |      |     |       |
| 634                  | 1340                   | +6    | 522   | 684                  | 1687                   | +7    | 522   | 734                  | 2122                   | +10   | 521   | 784                  | 2671                   | +12   | 521   |       |      |     |       |
| 8.635                | 0.000                  | 1346  | +6    | 9.522                | 8.685                  | 0.000 | 1694  | +8                   | 9.522                  | 8.735 | 0.000 | 2132                 | +10                    | 9.521 | 8.785 | 0.000 | 2683 | +12 | 9.521 |
| 636                  | 1352                   | +7    | 522   | 686                  | 1702                   | +8    | 522   | 736                  | 2142                   | +10   | 521   | 786                  | 2695                   | +13   | 521   |       |      |     |       |
| 637                  | 1359                   | +6    | 522   | 687                  | 1710                   | +8    | 522   | 737                  | 2152                   | +10   | 521   | 787                  | 2708                   | +12   | 521   |       |      |     |       |
| 638                  | 1365                   | +6    | 522   | 688                  | 1718                   | +8    | 522   | 738                  | 2162                   | +10   | 521   | 788                  | 2720                   | +13   | 521   |       |      |     |       |
| 639                  | 1371                   | +7    | 522   | 689                  | 1726                   | +8    | 522   | 739                  | 2172                   | +10   | 521   | 789                  | 2733                   | +12   | 521   |       |      |     |       |
| 8.640                | 0.000                  | 1378  | +6    | 9.522                | 8.690                  | 0.000 | 1734  | +8                   | 9.522                  | 8.740 | 0.000 | 2182                 | +10                    | 9.521 | 8.790 | 0.000 | 2745 | +13 | 9.521 |
| 641                  | 1384                   | +6    | 522   | 691                  | 1742                   | +8    | 522   | 741                  | 2192                   | +10   | 521   | 791                  | 2758                   | +13   | 521   |       |      |     |       |
| 642                  | 1390                   | +7    | 522   | 692                  | 1750                   | +8    | 522   | 742                  | 2202                   | +10   | 521   | 792                  | 2771                   | +12   | 521   |       |      |     |       |
| 643                  | 1397                   | +6    | 522   | 693                  | 1758                   | +8    | 522   | 743                  | 2212                   | +10   | 521   | 793                  | 2783                   | +13   | 521   |       |      |     |       |
| 644                  | 1403                   | +7    | 522   | 694                  | 1766                   | +8    | 522   | 744                  | 2222                   | +10   | 521   | 794                  | 2796                   | +13   | 521   |       |      |     |       |
| 8.645                | 0.000                  | 1410  | +6    | 9.522                | 8.695                  | 0.000 | 1774  | +8                   | 9.522                  | 8.745 | 0.000 | 2232                 | +11                    | 9.521 | 8.795 | 0.000 | 2809 | +13 | 9.521 |
| 646                  | 1416                   | +7    | 522   | 696                  | 1782                   | +8    | 522   | 746                  | 2243                   | +10   | 521   | 796                  | 2822                   | +13   | 521   |       |      |     |       |
| 647                  | 1423                   | +6    | 522   | 697                  | 1790                   | +9    | 522   | 747                  | 2253                   | +10   | 521   | 797                  | 2835                   | +13   | 521   |       |      |     |       |
| 648                  | 1429                   | +7    | 522   | 698                  | 1799                   | +8    | 522   | 748                  | 2263                   | +10   | 521   | 798                  | 2848                   | +13   | 521   |       |      |     |       |
| 649                  | 1436                   | +6    | 522   | 699                  | 1807                   | +8    | 522   | 749                  | 2274                   | +11   | 521   | 799                  | 2861                   | +13   | 521   |       |      |     |       |
| 8.650                | 0.000                  | 1442  |       | 9.522                | 8.700                  | 0.000 | 1815  |                      | 9.522                  | 8.750 | 0.000 | 2284                 |                        | 9.521 | 8.800 | 0.000 | 2874 |     | 9.521 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|
| 8.8000               | 0.000 2874             |       | 9.521 | 8.8050               | 0.000 2941             | +1    | 9.521 | 8.8100               | 0.000 3009             | +2    | 9.521 | 8.8150               | 0.000 3079             | +2    | 9.521 |
| 01                   | 2876                   | +1    | 521   | 51                   | 2942                   | +2    | 521   | 01                   | 3011                   | +1    | 521   | 51                   | 3081                   | +1    | 521   |
| 02                   | 2877                   | +1    | 521   | 52                   | 2944                   | +1    | 521   | 02                   | 3012                   | +2    | 521   | 52                   | 3082                   | +2    | 521   |
| 03                   | 2878                   | +2    | 521   | 53                   | 2945                   | +2    | 521   | 03                   | 3014                   | +1    | 521   | 53                   | 3084                   | +1    | 521   |
| 04                   | 2880                   | +1    | 521   | 54                   | 2947                   | +1    | 521   | 04                   | 3015                   | +1    | 521   | 54                   | 3085                   | +1    | 521   |
| 8.8005               | 0.000 2881             | +1    | 521   | 8.8055               | 0.000 2948             | +1    | 521   | 8.8105               | 0.000 3016             | +2    | 9.521 | 8.8155               | 0.000 3086             | +2    | 9.521 |
| 00                   | 2882                   | +2    | 521   | 56                   | 2949                   | +2    | 521   | 06                   | 3018                   | +1    | 521   | 56                   | 3088                   | +1    | 521   |
| 07                   | 2884                   | +1    | 521   | 57                   | 2951                   | +1    | 521   | 07                   | 3019                   | +2    | 521   | 57                   | 3089                   | +2    | 521   |
| 08                   | 2885                   | +1    | 521   | 58                   | 2952                   | +1    | 521   | 08                   | 3021                   | +1    | 521   | 58                   | 3091                   | +1    | 521   |
| 09                   | 2886                   | +2    | 521   | 59                   | 2953                   | +2    | 521   | 09                   | 3022                   | +1    | 521   | 59                   | 3092                   | +2    | 521   |
| 8.8010               | 0.000 2888             | +1    | 521   | 8.8060               | 0.000 2955             | +1    | 521   | 8.8110               | 0.000 3023             | +2    | 9.521 | 8.8160               | 0.000 3094             | +1    | 9.521 |
| 11                   | 2889                   | +1    | 521   | 61                   | 2956                   | +1    | 521   | 11                   | 3025                   | +1    | 521   | 61                   | 3095                   | +1    | 521   |
| 12                   | 2890                   | +2    | 521   | 62                   | 2957                   | +2    | 521   | 12                   | 3026                   | +1    | 521   | 62                   | 3096                   | +2    | 521   |
| 13                   | 2892                   | +1    | 521   | 63                   | 2959                   | +1    | 521   | 13                   | 3027                   | +2    | 521   | 63                   | 3098                   | +1    | 521   |
| 14                   | 2893                   | +1    | 521   | 64                   | 2960                   | +1    | 521   | 14                   | 3029                   | +1    | 521   | 64                   | 3099                   | +2    | 521   |
| 8.8015               | 0.000 2894             | +2    | 521   | 8.8065               | 0.000 2961             | +2    | 521   | 8.8115               | 0.000 3030             | +2    | 9.521 | 8.8165               | 0.000 3101             | +1    | 9.521 |
| 16                   | 2896                   | +1    | 521   | 66                   | 2963                   | +1    | 521   | 16                   | 3032                   | +1    | 521   | 66                   | 3102                   | +2    | 521   |
| 17                   | 2897                   | +1    | 521   | 67                   | 2964                   | +2    | 521   | 17                   | 3033                   | +1    | 521   | 67                   | 3104                   | +1    | 521   |
| 18                   | 2898                   | +2    | 521   | 68                   | 2966                   | +1    | 521   | 18                   | 3034                   | +2    | 521   | 68                   | 3105                   | +1    | 521   |
| 19                   | 2900                   | +1    | 521   | 69                   | 2967                   | +1    | 521   | 19                   | 3036                   | +1    | 521   | 69                   | 3106                   | +2    | 521   |
| 8.8020               | 0.000 2901             | +1    | 521   | 8.8070               | 0.000 2968             | +2    | 521   | 8.8120               | 0.000 3037             | +2    | 9.521 | 8.8170               | 0.000 3108             | +1    | 9.521 |
| 21                   | 2902                   | +2    | 521   | 71                   | 2970                   | +1    | 521   | 21                   | 3039                   | +1    | 521   | 71                   | 3109                   | +2    | 521   |
| 22                   | 2904                   | +1    | 521   | 72                   | 2971                   | +1    | 521   | 22                   | 3040                   | +1    | 521   | 72                   | 3111                   | +1    | 521   |
| 23                   | 2905                   | +1    | 521   | 73                   | 2972                   | +2    | 521   | 23                   | 3041                   | +2    | 521   | 73                   | 3112                   | +1    | 521   |
| 24                   | 2906                   | +2    | 521   | 74                   | 2974                   | +1    | 521   | 24                   | 3043                   | +1    | 521   | 74                   | 3113                   | +2    | 521   |
| 8.8025               | 0.000 2908             | +1    | 521   | 8.8075               | 0.000 2975             | +1    | 521   | 8.8125               | 0.000 3044             | +1    | 9.521 | 8.8175               | 0.000 3115             | +1    | 9.521 |
| 26                   | 2909                   | +1    | 521   | 76                   | 2976                   | +2    | 521   | 26                   | 3045                   | +2    | 521   | 76                   | 3116                   | +2    | 521   |
| 27                   | 2910                   | +2    | 521   | 77                   | 2978                   | +1    | 521   | 27                   | 3047                   | +1    | 521   | 77                   | 3118                   | +1    | 521   |
| 28                   | 2912                   | +2    | 521   | 78                   | 2979                   | +2    | 521   | 28                   | 3048                   | +2    | 521   | 78                   | 3119                   | +2    | 521   |
| 29                   | 2913                   | +1    | 521   | 79                   | 2981                   | +1    | 521   | 29                   | 3050                   | +1    | 521   | 79                   | 3121                   | +1    | 521   |
| 8.8030               | 0.000 2914             | +2    | 521   | 8.8080               | 0.000 2982             | +1    | 521   | 8.8130               | 0.000 3051             | +2    | 9.521 | 8.8180               | 0.000 3122             | +2    | 9.521 |
| 31                   | 2916                   | +1    | 521   | 81                   | 2983                   | +2    | 521   | 31                   | 3053                   | +1    | 521   | 81                   | 3124                   | +1    | 521   |
| 32                   | 2917                   | +1    | 521   | 82                   | 2985                   | +1    | 521   | 32                   | 3054                   | +1    | 521   | 82                   | 3125                   | +1    | 521   |
| 33                   | 2918                   | +2    | 521   | 83                   | 2986                   | +1    | 521   | 33                   | 3055                   | +2    | 521   | 83                   | 3126                   | +2    | 521   |
| 34                   | 2920                   | +1    | 521   | 84                   | 2987                   | +2    | 521   | 34                   | 3057                   | +1    | 521   | 84                   | 3128                   | +1    | 521   |
| 8.8035               | 0.000 2921             | +1    | 521   | 8.8085               | 0.000 2989             | +1    | 521   | 8.8135               | 0.000 3058             | +2    | 9.521 | 8.8185               | 0.000 3129             | +2    | 9.521 |
| 36                   | 2922                   | +2    | 521   | 86                   | 2990                   | +2    | 521   | 36                   | 3060                   | +1    | 521   | 86                   | 3131                   | +1    | 521   |
| 37                   | 2924                   | +1    | 521   | 87                   | 2992                   | +1    | 521   | 37                   | 3061                   | +1    | 521   | 87                   | 3132                   | +2    | 521   |
| 38                   | 2925                   | +1    | 521   | 88                   | 2993                   | +1    | 521   | 38                   | 3062                   | +2    | 521   | 88                   | 3134                   | +1    | 521   |
| 39                   | 2926                   | +2    | 521   | 89                   | 2994                   | +2    | 521   | 39                   | 3064                   | +1    | 521   | 89                   | 3135                   | +1    | 521   |
| 8.8040               | 0.000 2928             | +1    | 521   | 8.8090               | 0.000 2996             | +1    | 521   | 8.8140               | 0.000 3065             | +2    | 9.521 | 8.8190               | 0.000 3136             | +2    | 9.521 |
| 41                   | 2929                   | +1    | 521   | 91                   | 2997                   | +1    | 521   | 41                   | 3067                   | +1    | 521   | 91                   | 3138                   | +1    | 521   |
| 42                   | 2930                   | +1    | 521   | 92                   | 2998                   | +2    | 521   | 42                   | 3068                   | +1    | 521   | 92                   | 3139                   | +2    | 521   |
| 43                   | 2932                   | +1    | 521   | 93                   | 3000                   | +1    | 521   | 43                   | 3069                   | +2    | 521   | 93                   | 3141                   | +1    | 521   |
| 44                   | 2933                   | +1    | 521   | 94                   | 3001                   | +2    | 521   | 44                   | 3071                   | +1    | 521   | 94                   | 3142                   | +2    | 521   |
| 8.8045               | 0.000 2934             | +2    | 521   | 8.8095               | 0.000 3003             | +1    | 521   | 8.8145               | 0.000 3072             | +2    | 9.521 | 8.8195               | 0.000 3144             | +1    | 9.521 |
| 40                   | 2936                   | +1    | 521   | 96                   | 3004                   | +1    | 521   | 40                   | 3074                   | +1    | 521   | 96                   | 3145                   | +2    | 521   |
| 47                   | 2937                   | +1    | 521   | 97                   | 3005                   | +2    | 521   | 47                   | 3075                   | +2    | 521   | 97                   | 3147                   | +1    | 521   |
| 48                   | 2938                   | +2    | 521   | 98                   | 3007                   | +1    | 521   | 48                   | 3077                   | +1    | 521   | 98                   | 3148                   | +1    | 521   |
| 49                   | 2940                   | +1    | 521   | 99                   | 3008                   | +1    | 521   | 49                   | 3078                   | +1    | 521   | 99                   | 3149                   | +2    | 521   |
| 8.8050               | 0.000 2941             |       | 9.521 | 8.8100               | 0.000 3009             |       | 9.521 | 8.8150               | 0.000 3079             |       | 9.521 | 8.8200               | 0.000 3151             |       | 9.521 |

| log<br>+tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>+tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>+tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>+tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|
| 8.8200              | 0.000 3151             | +1    | 9.521 | 8.8250              | 0.000 3224             | +2    | 9.521 | 8.8300              | 0.000 3299             | +1    | 9.521 | 8.8350              | 0.000 3376             | +1    | 9.521 |
| 01                  | 3152                   | +2    | 521   | 51                  | 3226                   | +1    | 521   | 01                  | 3300                   | +2    | 521   | 51                  | 3377                   | +2    | 521   |
| 02                  | 3154                   | +1    | 521   | 52                  | 3227                   | +2    | 521   | 02                  | 3302                   | +2    | 521   | 52                  | 3379                   | +1    | 521   |
| 03                  | 3155                   | +2    | 521   | 53                  | 3229                   | +1    | 521   | 03                  | 3304                   | +1    | 521   | 53                  | 3380                   | +2    | 521   |
| 04                  | 3157                   | +1    | 521   | 54                  | 3230                   | +1    | 521   | 04                  | 3305                   | +2    | 521   | 54                  | 3382                   | +1    | 521   |
| 8.8205              | 0.000 3158             | +2    | 9.521 | 8.8255              | 0.000 3231             | +2    | 9.521 | 8.8305              | 0.000 3307             | +1    | 9.521 | 8.8355              | 0.000 3383             | +2    | 9.521 |
| 00                  | 3100                   | +1    | 521   | 50                  | 3233                   | +1    | 521   | 00                  | 3308                   | +2    | 521   | 50                  | 3385                   | +2    | 521   |
| 07                  | 3101                   | +1    | 521   | 57                  | 3234                   | +2    | 521   | 07                  | 3310                   | +1    | 521   | 57                  | 3387                   | +1    | 521   |
| 08                  | 3102                   | +2    | 521   | 58                  | 3230                   | +1    | 521   | 08                  | 3311                   | +2    | 521   | 58                  | 3388                   | +2    | 521   |
| 09                  | 3104                   | +1    | 521   | 59                  | 3237                   | +2    | 521   | 09                  | 3313                   | +1    | 521   | 59                  | 3390                   | +1    | 521   |
| 8.8210              | 0.000 3105             | +2    | 9.521 | 8.8260              | 0.000 3239             | +1    | 9.521 | 8.8310              | 0.000 3314             | +2    | 9.521 | 8.8360              | 0.000 3391             | +2    | 9.521 |
| 11                  | 3107                   | +1    | 521   | 61                  | 3240                   | +2    | 521   | 11                  | 3316                   | +1    | 521   | 61                  | 3393                   | +1    | 521   |
| 12                  | 3108                   | +2    | 521   | 62                  | 3242                   | +1    | 521   | 12                  | 3317                   | +2    | 521   | 62                  | 3394                   | +2    | 521   |
| 13                  | 3170                   | +1    | 521   | 63                  | 3243                   | +2    | 521   | 13                  | 3319                   | +1    | 521   | 63                  | 3390                   | +1    | 521   |
| 14                  | 3171                   | +2    | 521   | 64                  | 3245                   | +1    | 521   | 14                  | 3320                   | +2    | 521   | 64                  | 3397                   | +2    | 521   |
| 8.8215              | 0.000 3173             | +1    | 9.521 | 8.8265              | 0.000 3246             | +2    | 9.521 | 8.8315              | 0.000 3322             | +1    | 9.521 | 8.8365              | 0.000 3399             | +1    | 9.521 |
| 10                  | 3174                   | +2    | 521   | 66                  | 3248                   | +1    | 521   | 10                  | 3323                   | +2    | 521   | 66                  | 3400                   | +2    | 521   |
| 17                  | 3170                   | +1    | 521   | 67                  | 3249                   | +2    | 521   | 17                  | 3325                   | +1    | 521   | 67                  | 3402                   | +2    | 521   |
| 18                  | 3177                   | +2    | 521   | 68                  | 3251                   | +1    | 521   | 18                  | 3326                   | +2    | 521   | 68                  | 3404                   | +1    | 521   |
| 19                  | 3179                   | +1    | 521   | 69                  | 3252                   | +2    | 521   | 19                  | 3328                   | +1    | 521   | 69                  | 3405                   | +2    | 521   |
| 8.8220              | 0.000 3180             | +1    | 9.521 | 8.8270              | 0.000 3254             | +1    | 9.521 | 8.8320              | 0.000 3329             | +2    | 9.521 | 8.8370              | 0.000 3407             | +1    | 9.521 |
| 21                  | 3181                   | +2    | 521   | 71                  | 3255                   | +2    | 521   | 21                  | 3331                   | +1    | 521   | 71                  | 3408                   | +2    | 521   |
| 22                  | 3183                   | +1    | 521   | 72                  | 3257                   | +1    | 521   | 22                  | 3332                   | +2    | 521   | 72                  | 3410                   | +1    | 521   |
| 23                  | 3184                   | +2    | 521   | 73                  | 3258                   | +2    | 521   | 23                  | 3334                   | +2    | 521   | 73                  | 3411                   | +2    | 521   |
| 24                  | 3186                   | +1    | 521   | 74                  | 3260                   | +1    | 521   | 24                  | 3336                   | +1    | 521   | 74                  | 3413                   | +2    | 521   |
| 8.8225              | 0.000 3187             | +2    | 9.521 | 8.8275              | 0.000 3261             | +2    | 9.521 | 8.8325              | 0.000 3337             | +2    | 9.521 | 8.8375              | 0.000 3415             | +1    | 9.521 |
| 26                  | 3189                   | +1    | 521   | 76                  | 3263                   | +1    | 521   | 26                  | 3339                   | +1    | 521   | 76                  | 3416                   | +2    | 521   |
| 27                  | 3190                   | +2    | 521   | 77                  | 3264                   | +2    | 521   | 27                  | 3340                   | +2    | 521   | 77                  | 3418                   | +1    | 521   |
| 28                  | 3192                   | +1    | 521   | 78                  | 3266                   | +1    | 521   | 28                  | 3342                   | +1    | 521   | 78                  | 3419                   | +2    | 521   |
| 29                  | 3193                   | +2    | 521   | 79                  | 3267                   | +2    | 521   | 29                  | 3343                   | +2    | 521   | 79                  | 3421                   | +1    | 521   |
| 8.8230              | 0.000 3195             | +1    | 9.521 | 8.8280              | 0.000 3269             | +1    | 9.521 | 8.8330              | 0.000 3345             | +1    | 9.521 | 8.8380              | 0.000 3422             | +2    | 9.521 |
| 31                  | 3196                   | +2    | 521   | 81                  | 3270                   | +2    | 521   | 31                  | 3346                   | +2    | 521   | 81                  | 3424                   | +2    | 521   |
| 32                  | 3198                   | +1    | 521   | 82                  | 3271                   | +1    | 521   | 32                  | 3348                   | +2    | 521   | 82                  | 3426                   | +1    | 521   |
| 33                  | 3199                   | +1    | 521   | 83                  | 3273                   | +2    | 521   | 33                  | 3350                   | +1    | 521   | 83                  | 3427                   | +2    | 521   |
| 34                  | 3200                   | +2    | 521   | 84                  | 3275                   | +1    | 521   | 34                  | 3351                   | +1    | 521   | 84                  | 3429                   | +1    | 521   |
| 8.8235              | 0.000 3202             | +1    | 9.521 | 8.8285              | 0.000 3276             | +2    | 9.521 | 8.8335              | 0.000 3352             | +2    | 9.521 | 8.8385              | 0.000 3430             | +2    | 9.521 |
| 36                  | 3203                   | +2    | 521   | 86                  | 3278                   | +1    | 521   | 36                  | 3354                   | +1    | 521   | 86                  | 3432                   | +1    | 521   |
| 37                  | 3205                   | +1    | 521   | 87                  | 3279                   | +2    | 521   | 37                  | 3355                   | +2    | 521   | 87                  | 3433                   | +2    | 521   |
| 38                  | 3206                   | +2    | 521   | 88                  | 3281                   | +1    | 521   | 38                  | 3357                   | +2    | 521   | 88                  | 3435                   | +2    | 521   |
| 39                  | 3208                   | +1    | 521   | 89                  | 3282                   | +2    | 521   | 39                  | 3359                   | +1    | 521   | 89                  | 3437                   | +1    | 521   |
| 8.8240              | 0.000 3209             | +2    | 9.521 | 8.8290              | 0.000 3284             | +1    | 9.521 | 8.8340              | 0.000 3360             | +2    | 9.521 | 8.8390              | 0.000 3438             | +2    | 9.521 |
| 41                  | 3211                   | +1    | 521   | 91                  | 3285                   | +2    | 521   | 41                  | 3362                   | +1    | 521   | 91                  | 3440                   | +1    | 521   |
| 42                  | 3212                   | +2    | 521   | 92                  | 3287                   | +1    | 521   | 42                  | 3363                   | +2    | 521   | 92                  | 3441                   | +2    | 521   |
| 43                  | 3214                   | +1    | 521   | 93                  | 3288                   | +2    | 521   | 43                  | 3365                   | +1    | 521   | 93                  | 3443                   | +1    | 521   |
| 44                  | 3215                   | +2    | 521   | 94                  | 3290                   | +1    | 521   | 44                  | 3366                   | +2    | 521   | 94                  | 3444                   | +2    | 521   |
| 8.8245              | 0.000 3217             | +1    | 9.521 | 8.8295              | 0.000 3291             | +2    | 9.521 | 8.8345              | 0.000 3368             | +1    | 9.521 | 8.8395              | 0.000 3440             | +2    | 9.521 |
| 46                  | 3218                   | +2    | 521   | 96                  | 3293                   | +1    | 521   | 46                  | 3369                   | +2    | 521   | 96                  | 3448                   | +1    | 521   |
| 47                  | 3220                   | +1    | 521   | 97                  | 3294                   | +2    | 521   | 47                  | 3371                   | +1    | 521   | 97                  | 3449                   | +2    | 521   |
| 48                  | 3221                   | +2    | 521   | 98                  | 3296                   | +1    | 521   | 48                  | 3372                   | +2    | 521   | 98                  | 3451                   | +1    | 521   |
| 49                  | 3223                   | +1    | 521   | 99                  | 3297                   | +2    | 521   | 49                  | 3374                   | +2    | 521   | 99                  | 3452                   | +2    | 521   |
| 8.8250              | 0.000 3224             |       | 9.521 | 8.8300              | 0.000 3299             |       | 9.521 | 8.8350              | 0.000 3376             |       | 9.521 | 8.8400              | 0.000 3454             |       | 9.521 |



| log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|
| 8.8400              | 0.000 3454             | +2    | 9.521 | 8.8450              | 0.000 3534             | +2    | 9.521 | 8.8500              | 0.000 3616             | +2    | 9.520 | 8.8550              | 0.000 3700             | +2    | 9.520 |
| 01                  | 3456                   | +1    | 521   | 51                  | 3536                   | +1    | 521   | 01                  | 3618                   | +2    | 520   | 51                  | 3702                   | +2    | 520   |
| 02                  | 3457                   | +2    | 521   | 52                  | 3537                   | +2    | 521   | 02                  | 3620                   | +1    | 520   | 52                  | 3704                   | +1    | 520   |
| 03                  | 3459                   | +1    | 521   | 53                  | 3539                   | +2    | 521   | 03                  | 3621                   | +2    | 520   | 53                  | 3705                   | +2    | 520   |
| 04                  | 3460                   | +2    | 521   | 54                  | 3541                   | +1    | 521   | 04                  | 3623                   | +2    | 520   | 54                  | 3707                   | +2    | 520   |
| 8.8405              | 0.000 3462             | +2    | 9.521 | 8.8455              | 0.000 3542             | +2    | 9.521 | 8.8505              | 0.000 3625             | +1    | 9.520 | 8.8555              | 0.000 3709             | +1    | 9.520 |
| 00                  | 3464                   | +1    | 521   | 56                  | 3544                   | +2    | 521   | 06                  | 3626                   | +2    | 520   | 56                  | 3710                   | +2    | 520   |
| 07                  | 3465                   | +2    | 521   | 57                  | 3546                   | +1    | 521   | 07                  | 3628                   | +2    | 520   | 57                  | 3712                   | +2    | 520   |
| 08                  | 3467                   | +1    | 521   | 58                  | 3547                   | +2    | 521   | 08                  | 3630                   | +1    | 520   | 58                  | 3714                   | +2    | 520   |
| 09                  | 3468                   | +2    | 521   | 59                  | 3549                   | +1    | 521   | 09                  | 3631                   | +2    | 520   | 59                  | 3716                   | +1    | 520   |
| 8.8410              | 0.000 3470             | +1    | 9.521 | 8.8460              | 0.000 3550             | +2    | 9.521 | 8.8510              | 0.000 3635             | +2    | 9.520 | 8.8560              | 0.000 3717             | +2    | 9.520 |
| 11                  | 3471                   | +2    | 521   | 61                  | 3552                   | +2    | 521   | 11                  | 3635                   | +1    | 520   | 61                  | 3719                   | +2    | 520   |
| 12                  | 3473                   | +2    | 521   | 62                  | 3554                   | +1    | 521   | 12                  | 3636                   | +2    | 520   | 62                  | 3721                   | +1    | 520   |
| 13                  | 3475                   | +1    | 521   | 63                  | 3555                   | +2    | 521   | 13                  | 3638                   | +2    | 520   | 63                  | 3722                   | +2    | 520   |
| 14                  | 3476                   | +2    | 521   | 64                  | 3557                   | +2    | 521   | 14                  | 3640                   | +1    | 520   | 64                  | 3724                   | +2    | 520   |
| 8.8415              | 0.000 3478             | +1    | 9.521 | 8.8465              | 0.000 3559             | +1    | 9.521 | 8.8515              | 0.000 3641             | +2    | 9.520 | 8.8565              | 0.000 3726             | +1    | 9.520 |
| 16                  | 3479                   | +2    | 521   | 66                  | 3560                   | +2    | 521   | 16                  | 3643                   | +2    | 520   | 66                  | 3727                   | +2    | 520   |
| 17                  | 3481                   | +2    | 521   | 67                  | 3562                   | +2    | 521   | 17                  | 3645                   | +1    | 520   | 67                  | 3729                   | +2    | 520   |
| 18                  | 3483                   | +1    | 521   | 68                  | 3564                   | +1    | 521   | 18                  | 3646                   | +2    | 520   | 68                  | 3731                   | +2    | 520   |
| 19                  | 3484                   | +2    | 521   | 69                  | 3565                   | +2    | 521   | 19                  | 3648                   | +2    | 520   | 69                  | 3733                   | +1    | 520   |
| 8.8420              | 0.000 3486             | +1    | 9.521 | 8.8470              | 0.000 3567             | +1    | 9.521 | 8.8520              | 0.000 3650             | +1    | 9.520 | 8.8570              | 0.000 3734             | +2    | 9.520 |
| 21                  | 3487                   | +2    | 521   | 71                  | 3568                   | +2    | 521   | 21                  | 3651                   | +2    | 520   | 71                  | 3736                   | +2    | 520   |
| 22                  | 3489                   | +2    | 521   | 72                  | 3570                   | +2    | 521   | 22                  | 3653                   | +2    | 520   | 72                  | 3738                   | +1    | 520   |
| 23                  | 3491                   | +1    | 521   | 73                  | 3572                   | +1    | 521   | 23                  | 3655                   | +1    | 520   | 73                  | 3739                   | +2    | 520   |
| 24                  | 3492                   | +2    | 521   | 74                  | 3573                   | +2    | 521   | 24                  | 3656                   | +2    | 520   | 74                  | 3741                   | +2    | 520   |
| 8.8425              | 0.000 3494             | +1    | 9.521 | 8.8475              | 0.000 3575             | +1    | 9.521 | 8.8525              | 0.000 3658             | +2    | 9.520 | 8.8575              | 0.000 3743             | +2    | 9.520 |
| 26                  | 3495                   | +2    | 521   | 76                  | 3576                   | +2    | 521   | 26                  | 3660                   | +1    | 520   | 76                  | 3745                   | +1    | 520   |
| 27                  | 3497                   | +2    | 521   | 77                  | 3578                   | +2    | 521   | 27                  | 3661                   | +2    | 520   | 77                  | 3746                   | +2    | 520   |
| 28                  | 3499                   | +1    | 521   | 78                  | 3580                   | +2    | 521   | 28                  | 3663                   | +2    | 520   | 78                  | 3748                   | +2    | 520   |
| 29                  | 3500                   | +2    | 521   | 79                  | 3582                   | +1    | 521   | 29                  | 3665                   | +1    | 520   | 79                  | 3750                   | +2    | 520   |
| 8.8430              | 0.000 3502             | +1    | 9.521 | 8.8480              | 0.000 3583             | +2    | 9.521 | 8.8530              | 0.000 3666             | +2    | 9.520 | 8.8580              | 0.000 3752             | +1    | 9.520 |
| 31                  | 3503                   | +2    | 521   | 81                  | 3585                   | +1    | 521   | 31                  | 3668                   | +2    | 520   | 81                  | 3753                   | +2    | 520   |
| 32                  | 3505                   | +2    | 521   | 82                  | 3586                   | +2    | 521   | 32                  | 3670                   | +1    | 520   | 82                  | 3755                   | +2    | 520   |
| 33                  | 3507                   | +1    | 521   | 83                  | 3588                   | +2    | 521   | 33                  | 3671                   | +2    | 520   | 83                  | 3757                   | +1    | 520   |
| 34                  | 3508                   | +2    | 521   | 84                  | 3590                   | +1    | 521   | 34                  | 3673                   | +2    | 520   | 84                  | 3758                   | +2    | 520   |
| 8.8435              | 0.000 3510             | +2    | 9.521 | 8.8485              | 0.000 3591             | +2    | 9.521 | 8.8535              | 0.000 3675             | +1    | 9.520 | 8.8585              | 0.000 3760             | +2    | 9.520 |
| 36                  | 3512                   | +1    | 521   | 86                  | 3593                   | +2    | 521   | 36                  | 3676                   | +2    | 520   | 86                  | 3762                   | +2    | 520   |
| 37                  | 3513                   | +2    | 521   | 87                  | 3595                   | +1    | 521   | 37                  | 3678                   | +2    | 520   | 87                  | 3764                   | +1    | 520   |
| 38                  | 3515                   | +2    | 521   | 88                  | 3596                   | +2    | 521   | 38                  | 3680                   | +2    | 520   | 88                  | 3765                   | +2    | 520   |
| 39                  | 3516                   | +2    | 521   | 89                  | 3598                   | +2    | 521   | 39                  | 3682                   | +1    | 520   | 89                  | 3767                   | +2    | 520   |
| 8.8440              | 0.000 3518             | +2    | 9.521 | 8.8490              | 0.000 3600             | +1    | 9.520 | 8.8540              | 0.000 3683             | +2    | 9.520 | 8.8590              | 0.000 3769             | +1    | 9.520 |
| 41                  | 3520                   | +1    | 521   | 91                  | 3601                   | +2    | 520   | 41                  | 3685                   | +2    | 520   | 91                  | 3770                   | +2    | 520   |
| 42                  | 3521                   | +2    | 521   | 92                  | 3603                   | +2    | 520   | 42                  | 3687                   | +1    | 520   | 92                  | 3772                   | +2    | 520   |
| 43                  | 3523                   | +2    | 521   | 93                  | 3605                   | +1    | 520   | 43                  | 3688                   | +2    | 520   | 93                  | 3774                   | +2    | 520   |
| 44                  | 3524                   | +2    | 521   | 94                  | 3606                   | +2    | 520   | 44                  | 3690                   | +2    | 520   | 94                  | 3776                   | +1    | 520   |
| 8.8445              | 0.000 3526             | +2    | 9.521 | 8.8495              | 0.000 3608             | +2    | 9.520 | 8.8545              | 0.000 3692             | +1    | 9.520 | 8.8595              | 0.000 3777             | +2    | 9.520 |
| 46                  | 3528                   | +1    | 521   | 96                  | 3610                   | +1    | 520   | 46                  | 3693                   | +2    | 520   | 96                  | 3779                   | +2    | 520   |
| 47                  | 3529                   | +2    | 521   | 97                  | 3611                   | +2    | 520   | 47                  | 3695                   | +2    | 520   | 97                  | 3781                   | +2    | 520   |
| 48                  | 3531                   | +2    | 521   | 98                  | 3613                   | +2    | 520   | 48                  | 3697                   | +2    | 520   | 98                  | 3783                   | +1    | 520   |
| 49                  | 3533                   | +1    | 521   | 99                  | 3615                   | +1    | 520   | 49                  | 3699                   | +1    | 520   | 99                  | 3784                   | +2    | 520   |
| 8.8450              | 0.000 3534             |       | 9.521 | 8.8500              | 0.000 3616             |       | 9.520 | 8.8550              | 0.000 3700             |       | 9.520 | 8.8600              | 0.000 3786             |       | 9.520 |

| log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|
| 8·8600              | 0·000 3786             | +2    | 9·520 | 8·8650              | 0·000 3874             | +2    | 9·520 | 8·8700              | 0·000 3964             | +2    | 9·520 | 8·8750              | 0·000 4056             | +2    | 9·520 |
| 01                  | 3788                   | +2    | 520   | 51                  | 3870                   | +2    | 520   | 01                  | 3966                   | +2    | 520   | 51                  | 4058                   | +2    | 520   |
| 02                  | 3790                   | +1    | 520   | 52                  | 3878                   | +1    | 520   | 02                  | 3968                   | +1    | 520   | 52                  | 4060                   | +2    | 520   |
| 03                  | 3791                   | +2    | 520   | 53                  | 3879                   | +2    | 520   | 03                  | 3969                   | +2    | 520   | 53                  | 4062                   | +1    | 520   |
| 04                  | 3793                   | +2    | 520   | 54                  | 3881                   | +2    | 520   | 04                  | 3971                   | +2    | 520   | 54                  | 4063                   | +2    | 520   |
| 8·8605              | 0·000 3795             | +2    | 9·520 | 8·8655              | 0·000 3883             | +2    | 9·520 | 8·8705              | 0·000 3973             | +2    | 9·520 | 8·8755              | 0·000 4065             | +2    | 9·520 |
| 06                  | 3797                   | +1    | 520   | 56                  | 3885                   | +1    | 520   | 06                  | 3975                   | +2    | 520   | 56                  | 4067                   | +2    | 520   |
| 07                  | 3798                   | +2    | 520   | 57                  | 3886                   | +2    | 520   | 07                  | 3977                   | +1    | 520   | 57                  | 4069                   | +2    | 520   |
| 08                  | 3800                   | +2    | 520   | 58                  | 3888                   | +2    | 520   | 08                  | 3978                   | +2    | 520   | 58                  | 4071                   | +2    | 520   |
| 09                  | 3802                   | +2    | 520   | 59                  | 3890                   | +2    | 520   | 09                  | 3980                   | +2    | 520   | 59                  | 4073                   | +2    | 520   |
| 8·8610              | 0·000 3804             | +1    | 9·520 | 8·8660              | 0·000 3892             | +2    | 9·520 | 8·8710              | 0·000 3982             | +2    | 9·520 | 8·8760              | 0·000 4075             | +1    | 9·520 |
| 11                  | 3805                   | +2    | 520   | 61                  | 3894                   | +1    | 520   | 11                  | 3984                   | +2    | 520   | 61                  | 4076                   | +2    | 520   |
| 12                  | 3807                   | +2    | 520   | 62                  | 3895                   | +2    | 520   | 12                  | 3986                   | +2    | 520   | 62                  | 4078                   | +2    | 520   |
| 13                  | 3809                   | +2    | 520   | 63                  | 3897                   | +2    | 520   | 13                  | 3988                   | +2    | 520   | 63                  | 4080                   | +2    | 520   |
| 14                  | 3811                   | +1    | 520   | 64                  | 3899                   | +2    | 520   | 14                  | 3989                   | +2    | 520   | 64                  | 4082                   | +2    | 520   |
| 8·8615              | 0·000 3812             | +2    | 9·520 | 8·8665              | 0·000 3901             | +2    | 9·520 | 8·8715              | 0·000 3991             | +2    | 9·520 | 8·8765              | 0·000 4084             | +2    | 9·520 |
| 16                  | 3814                   | +2    | 520   | 66                  | 3903                   | +1    | 520   | 16                  | 3993                   | +2    | 520   | 66                  | 4086                   | +2    | 520   |
| 17                  | 3816                   | +2    | 520   | 67                  | 3904                   | +2    | 520   | 17                  | 3995                   | +2    | 520   | 67                  | 4088                   | +2    | 520   |
| 18                  | 3818                   | +1    | 520   | 68                  | 3906                   | +2    | 520   | 18                  | 3997                   | +2    | 520   | 68                  | 4090                   | +1    | 520   |
| 19                  | 3819                   | +2    | 520   | 69                  | 3908                   | +2    | 520   | 19                  | 3999                   | +1    | 520   | 69                  | 4091                   | +2    | 520   |
| 8·8620              | 0·000 3821             | +2    | 9·520 | 8·8670              | 0·000 3910             | +2    | 9·520 | 8·8720              | 0·000 4000             | +2    | 9·520 | 8·8770              | 0·000 4093             | +2    | 9·520 |
| 21                  | 3823                   | +2    | 520   | 71                  | 3912                   | +1    | 520   | 21                  | 4002                   | +2    | 520   | 71                  | 4095                   | +2    | 520   |
| 22                  | 3825                   | +1    | 520   | 72                  | 3913                   | +2    | 520   | 22                  | 4004                   | +2    | 520   | 72                  | 4097                   | +2    | 520   |
| 23                  | 3826                   | +2    | 520   | 73                  | 3915                   | +2    | 520   | 23                  | 4006                   | +2    | 520   | 73                  | 4099                   | +2    | 520   |
| 24                  | 3828                   | +2    | 520   | 74                  | 3917                   | +2    | 520   | 24                  | 4008                   | +2    | 520   | 74                  | 4101                   | +2    | 520   |
| 8·8625              | 0·000 3830             | +2    | 9·520 | 8·8675              | 0·000 3919             | +1    | 9·520 | 8·8725              | 0·000 4010             | +2    | 9·520 | 8·8775              | 0·000 4103             | +2    | 9·520 |
| 26                  | 3832                   | +1    | 520   | 76                  | 3920                   | +2    | 520   | 26                  | 4012                   | +1    | 520   | 76                  | 4105                   | +1    | 520   |
| 27                  | 3833                   | +2    | 520   | 77                  | 3922                   | +2    | 520   | 27                  | 4013                   | +2    | 520   | 77                  | 4106                   | +2    | 520   |
| 28                  | 3835                   | +2    | 520   | 78                  | 3924                   | +2    | 520   | 28                  | 4015                   | +2    | 520   | 78                  | 4108                   | +2    | 520   |
| 29                  | 3837                   | +2    | 520   | 79                  | 3926                   | +2    | 520   | 29                  | 4017                   | +2    | 520   | 79                  | 4110                   | +2    | 520   |
| 8·8630              | 0·000 3839             | +1    | 9·520 | 8·8680              | 0·000 3928             | +2    | 9·520 | 8·8730              | 0·000 4019             | +2    | 9·520 | 8·8780              | 0·000 4112             | +2    | 9·520 |
| 31                  | 3840                   | +2    | 520   | 81                  | 3930                   | +1    | 520   | 31                  | 4021                   | +2    | 520   | 81                  | 4114                   | +2    | 520   |
| 32                  | 3842                   | +2    | 520   | 82                  | 3931                   | +2    | 520   | 32                  | 4023                   | +1    | 520   | 82                  | 4116                   | +2    | 520   |
| 33                  | 3844                   | +2    | 520   | 83                  | 3933                   | +2    | 520   | 33                  | 4024                   | +2    | 520   | 83                  | 4118                   | +2    | 520   |
| 34                  | 3846                   | +1    | 520   | 84                  | 3935                   | +2    | 520   | 34                  | 4026                   | +2    | 520   | 84                  | 4120                   | +2    | 520   |
| 8·8635              | 0·000 3847             | +2    | 9·520 | 8·8685              | 0·000 3937             | +2    | 9·520 | 8·8735              | 0·000 4028             | +2    | 9·520 | 8·8785              | 0·000 4122             | +1    | 9·520 |
| 36                  | 3849                   | +2    | 520   | 86                  | 3939                   | +1    | 520   | 36                  | 4030                   | +2    | 520   | 86                  | 4123                   | +2    | 520   |
| 37                  | 3851                   | +2    | 520   | 87                  | 3940                   | +2    | 520   | 37                  | 4032                   | +2    | 520   | 87                  | 4125                   | +2    | 520   |
| 38                  | 3853                   | +1    | 520   | 88                  | 3942                   | +2    | 520   | 38                  | 4034                   | +2    | 520   | 88                  | 4127                   | +2    | 520   |
| 39                  | 3854                   | +2    | 520   | 89                  | 3944                   | +2    | 520   | 39                  | 4036                   | +1    | 520   | 89                  | 4129                   | +2    | 520   |
| 8·8640              | 0·000 3856             | +2    | 9·520 | 8·8690              | 0·000 3946             | +2    | 9·520 | 8·8740              | 0·000 4037             | +2    | 9·520 | 8·8790              | 0·000 4131             | +2    | 9·520 |
| 41                  | 3858                   | +2    | 520   | 91                  | 3948                   | +1    | 520   | 41                  | 4039                   | +2    | 520   | 91                  | 4133                   | +2    | 520   |
| 42                  | 3860                   | +2    | 520   | 92                  | 3949                   | +2    | 520   | 42                  | 4041                   | +2    | 520   | 92                  | 4135                   | +2    | 520   |
| 43                  | 3862                   | +1    | 520   | 93                  | 3951                   | +2    | 520   | 43                  | 4043                   | +2    | 520   | 93                  | 4137                   | +2    | 520   |
| 44                  | 3863                   | +2    | 520   | 94                  | 3953                   | +2    | 520   | 44                  | 4045                   | +2    | 520   | 94                  | 4139                   | +2    | 520   |
| 8·8645              | 0·000 3865             | +2    | 9·520 | 8·8695              | 0·000 3955             | +2    | 9·520 | 8·8745              | 0·000 4047             | +1    | 9·520 | 8·8795              | 0·000 4141             | +1    | 9·520 |
| 46                  | 3867                   | +2    | 520   | 96                  | 3957                   | +1    | 520   | 46                  | 4048                   | +2    | 520   | 96                  | 4142                   | +2    | 520   |
| 47                  | 3869                   | +1    | 520   | 97                  | 3958                   | +2    | 520   | 47                  | 4050                   | +2    | 520   | 97                  | 4144                   | +2    | 520   |
| 48                  | 3870                   | +2    | 520   | 98                  | 3960                   | +2    | 520   | 48                  | 4052                   | +2    | 520   | 98                  | 4146                   | +2    | 520   |
| 49                  | 3872                   | +2    | 520   | 99                  | 3962                   | +2    | 520   | 49                  | 4054                   | +2    | 520   | 99                  | 4148                   | +2    | 520   |
| 8·8650              | 0·000 3874             |       | 9·520 | 8·8700              | 0·000 3964             |       | 9·520 | 8·8750              | 0·000 4056             |       | 9·520 | 8·8800              | 0·000 4150             |       | 9·520 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g |
|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|
| S.8800               | 0.000 4150              | +2    | 9.520 | S.8850               | 0.000 4246              | +2    | 9.520 | S.8900               | 0.000 4345              | +2    | 9.520 | S.8950               | 0.000 4446              | +2    | 9.520 |
| 01                   | 4152                    | +2    | 520   | 51                   | 4248                    | +2    | 520   | 01                   | 4347                    | +2    | 520   | 51                   | 4448                    | +2    | 520   |
| 02                   | 4154                    | +2    | 520   | 52                   | 4250                    | +2    | 520   | 02                   | 4349                    | +2    | 520   | 52                   | 4450                    | +2    | 520   |
| 03                   | 4156                    | +2    | 520   | 53                   | 4252                    | +2    | 520   | 03                   | 4351                    | +2    | 520   | 53                   | 4452                    | +2    | 520   |
| 04                   | 4158                    | +2    | 520   | 54                   | 4254                    | +2    | 520   | 04                   | 4353                    | +2    | 520   | 54                   | 4454                    | +2    | 520   |
| S.8805               | 0.000 4160              | +1    | 9.520 | S.8855               | 0.000 4256              | +2    | 9.520 | S.8905               | 0.000 4355              | +2    | 9.520 | S.8955               | 0.000 4456              | +2    | 9.520 |
| 06                   | 4161                    | +2    | 520   | 56                   | 4258                    | +2    | 520   | 06                   | 4357                    | +2    | 520   | 56                   | 4458                    | +2    | 520   |
| 07                   | 4163                    | +2    | 520   | 57                   | 4260                    | +2    | 520   | 07                   | 4359                    | +2    | 520   | 57                   | 4460                    | +2    | 520   |
| 08                   | 4165                    | +2    | 520   | 58                   | 4262                    | +2    | 520   | 08                   | 4361                    | +2    | 520   | 58                   | 4462                    | +2    | 520   |
| 09                   | 4167                    | +2    | 520   | 59                   | 4264                    | +2    | 520   | 09                   | 4363                    | +2    | 520   | 59                   | 4464                    | +2    | 520   |
| S.8810               | 0.000 4169              | +2    | 9.520 | S.8860               | 0.000 4266              | +2    | 9.520 | S.8910               | 0.000 4365              | +2    | 9.520 | S.8960               | 0.000 4466              | +2    | 9.520 |
| 11                   | 4171                    | +2    | 520   | 61                   | 4268                    | +2    | 520   | 11                   | 4367                    | +2    | 520   | 61                   | 4468                    | +2    | 520   |
| 12                   | 4173                    | +2    | 520   | 62                   | 4270                    | +2    | 520   | 12                   | 4369                    | +2    | 520   | 62                   | 4470                    | +2    | 520   |
| 13                   | 4175                    | +2    | 520   | 63                   | 4272                    | +2    | 520   | 13                   | 4371                    | +2    | 520   | 63                   | 4472                    | +2    | 520   |
| 14                   | 4177                    | +2    | 520   | 64                   | 4274                    | +2    | 520   | 14                   | 4373                    | +2    | 520   | 64                   | 4474                    | +2    | 520   |
| S.8815               | 0.000 4179              | +2    | 9.520 | S.8865               | 0.000 4276              | +2    | 9.520 | S.8915               | 0.000 4375              | +2    | 9.520 | S.8965               | 0.000 4470              | +2    | 9.520 |
| 16                   | 4181                    | +2    | 520   | 66                   | 4278                    | +2    | 520   | 16                   | 4377                    | +2    | 520   | 66                   | 4478                    | +3    | 520   |
| 17                   | 4183                    | +1    | 520   | 67                   | 4280                    | +2    | 520   | 17                   | 4379                    | +2    | 520   | 67                   | 4481                    | +2    | 520   |
| 18                   | 4184                    | +2    | 520   | 68                   | 4282                    | +2    | 520   | 18                   | 4381                    | +2    | 520   | 68                   | 4483                    | +2    | 520   |
| 19                   | 4186                    | +2    | 520   | 69                   | 4284                    | +2    | 520   | 19                   | 4383                    | +2    | 520   | 69                   | 4485                    | +2    | 520   |
| S.8820               | 0.000 4188              | +2    | 9.520 | S.8870               | 0.000 4286              | +1    | 9.520 | S.8920               | 0.000 4385              | +2    | 9.520 | S.8970               | 0.000 4487              | +2    | 9.520 |
| 21                   | 4190                    | +2    | 520   | 71                   | 4287                    | +2    | 520   | 21                   | 4387                    | +2    | 520   | 71                   | 4489                    | +2    | 520   |
| 22                   | 4192                    | +2    | 520   | 72                   | 4289                    | +2    | 520   | 22                   | 4389                    | +2    | 520   | 72                   | 4491                    | +2    | 520   |
| 23                   | 4194                    | +2    | 520   | 73                   | 4291                    | +2    | 520   | 23                   | 4391                    | +2    | 520   | 73                   | 4493                    | +2    | 520   |
| 24                   | 4196                    | +2    | 520   | 74                   | 4293                    | +2    | 520   | 24                   | 4393                    | +2    | 520   | 74                   | 4495                    | +2    | 520   |
| S.8825               | 0.000 4198              | +2    | 9.520 | S.8875               | 0.000 4295              | +2    | 9.520 | S.8925               | 0.000 4395              | +2    | 9.520 | S.8975               | 0.000 4497              | +2    | 9.520 |
| 26                   | 4200                    | +2    | 520   | 76                   | 4297                    | +2    | 520   | 26                   | 4397                    | +2    | 520   | 76                   | 4499                    | +2    | 520   |
| 27                   | 4202                    | +2    | 520   | 77                   | 4299                    | +2    | 520   | 27                   | 4399                    | +2    | 520   | 77                   | 4501                    | +2    | 520   |
| 28                   | 4204                    | +2    | 520   | 78                   | 4301                    | +2    | 520   | 28                   | 4401                    | +2    | 520   | 78                   | 4503                    | +2    | 520   |
| 29                   | 4206                    | +2    | 520   | 79                   | 4303                    | +2    | 520   | 29                   | 4403                    | +2    | 520   | 79                   | 4505                    | +2    | 520   |
| S.8830               | 0.000 4208              | +2    | 9.520 | S.8880               | 0.000 4305              | +2    | 9.520 | S.8930               | 0.000 4405              | +2    | 9.520 | S.8980               | 0.000 4507              | +2    | 9.520 |
| 31                   | 4210                    | +1    | 520   | 81                   | 4307                    | +2    | 520   | 31                   | 4407                    | +2    | 520   | 81                   | 4509                    | +2    | 520   |
| 32                   | 4211                    | +2    | 520   | 82                   | 4309                    | +2    | 520   | 32                   | 4409                    | +2    | 520   | 82                   | 4511                    | +3    | 520   |
| 33                   | 4213                    | +2    | 520   | 83                   | 4311                    | +2    | 520   | 33                   | 4411                    | +2    | 520   | 83                   | 4514                    | +2    | 520   |
| 34                   | 4215                    | +2    | 520   | 84                   | 4313                    | +2    | 520   | 34                   | 4413                    | +2    | 520   | 84                   | 4516                    | +2    | 520   |
| S.8835               | 0.000 4217              | +2    | 9.520 | S.8885               | 0.000 4315              | +2    | 9.520 | S.8935               | 0.000 4415              | +2    | 9.520 | S.8985               | 0.000 4518              | +2    | 9.520 |
| 36                   | 4219                    | +2    | 520   | 86                   | 4317                    | +2    | 520   | 36                   | 4417                    | +2    | 520   | 86                   | 4520                    | +2    | 520   |
| 37                   | 4221                    | +2    | 520   | 87                   | 4319                    | +2    | 520   | 37                   | 4419                    | +2    | 520   | 87                   | 4522                    | +2    | 520   |
| 38                   | 4223                    | +2    | 520   | 88                   | 4321                    | +2    | 520   | 38                   | 4421                    | +2    | 520   | 88                   | 4524                    | +2    | 520   |
| 39                   | 4225                    | +2    | 520   | 89                   | 4323                    | +2    | 520   | 39                   | 4423                    | +2    | 520   | 89                   | 4526                    | +2    | 520   |
| S.8840               | 0.000 4227              | +2    | 9.520 | S.8890               | 0.000 4325              | +2    | 9.520 | S.8940               | 0.000 4425              | +2    | 9.520 | S.8990               | 0.000 4528              | +2    | 9.520 |
| 41                   | 4229                    | +2    | 520   | 91                   | 4327                    | +2    | 520   | 41                   | 4427                    | +2    | 520   | 91                   | 4530                    | +2    | 520   |
| 42                   | 4231                    | +2    | 520   | 92                   | 4329                    | +2    | 520   | 42                   | 4429                    | +2    | 520   | 92                   | 4532                    | +2    | 520   |
| 43                   | 4233                    | +2    | 520   | 93                   | 4331                    | +2    | 520   | 43                   | 4431                    | +2    | 520   | 93                   | 4534                    | +2    | 520   |
| 44                   | 4235                    | +2    | 520   | 94                   | 4333                    | +2    | 520   | 44                   | 4433                    | +3    | 520   | 94                   | 4536                    | +2    | 520   |
| S.8845               | 0.000 4237              | +2    | 9.520 | S.8895               | 0.000 4335              | +2    | 9.520 | S.8945               | 0.000 4436              | +2    | 9.520 | S.8995               | 0.000 4538              | +3    | 9.520 |
| 46                   | 4239                    | +2    | 520   | 96                   | 4337                    | +2    | 520   | 46                   | 4438                    | +2    | 520   | 96                   | 4541                    | +2    | 520   |
| 47                   | 4241                    | +1    | 520   | 97                   | 4339                    | +2    | 520   | 47                   | 4440                    | +2    | 520   | 97                   | 4543                    | +2    | 520   |
| 48                   | 4242                    | +2    | 520   | 98                   | 4341                    | +2    | 520   | 48                   | 4442                    | +2    | 520   | 98                   | 4545                    | +2    | 520   |
| 49                   | 4244                    | +2    | 520   | 99                   | 4343                    | +2    | 520   | 49                   | 4444                    | +2    | 520   | 99                   | 4547                    | +2    | 520   |
| S.8850               | 0.000 4246              |       | 9.520 | S.8900               | 0.000 4345              |       | 9.520 | S.8950               | 0.000 4446              |       | 9.520 | S.9000               | 0.000 4549              |       | 9.520 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|
| 8.9000               | 0.000 4549             | +2    | 9.520 | 8.9050               | 0.000 4654             | +3    | 9.520 | 8.9100               | 0.000 4762             | +3    | 9.520 | 8.9150               | 0.000 4873             | +2    | 9.520 |
| 01                   | 4551                   | +2    | 520   | 51                   | 4657                   | +2    | 520   | 01                   | 4765                   | +2    | 520   | 51                   | 4875                   | +2    | 520   |
| 02                   | 4553                   | +2    | 520   | 52                   | 4659                   | +2    | 520   | 02                   | 4767                   | +2    | 520   | 52                   | 4877                   | +3    | 520   |
| 03                   | 4555                   | +2    | 520   | 53                   | 4661                   | +2    | 520   | 03                   | 4769                   | +2    | 520   | 53                   | 4880                   | +2    | 520   |
| 04                   | 4557                   | +2    | 520   | 54                   | 4663                   | +2    | 520   | 04                   | 4771                   | +2    | 520   | 54                   | 4882                   | +2    | 520   |
| 8.9005               | 0.000 4559             | +2    | 9.520 | 8.9055               | 0.000 4665             | +2    | 9.520 | 8.9105               | 0.000 4773             | +2    | 9.520 | 8.9155               | 0.000 4884             | +2    | 9.520 |
| 06                   | 4561                   | +2    | 520   | 56                   | 4667                   | +2    | 520   | 06                   | 4775                   | +3    | 520   | 56                   | 4886                   | +2    | 520   |
| 07                   | 4563                   | +2    | 520   | 57                   | 4669                   | +2    | 520   | 07                   | 4778                   | +2    | 520   | 57                   | 4888                   | +2    | 520   |
| 08                   | 4566                   | +3    | 520   | 58                   | 4671                   | +2    | 520   | 08                   | 4780                   | +2    | 520   | 58                   | 4891                   | +3    | 520   |
| 09                   | 4568                   | +2    | 520   | 59                   | 4674                   | +2    | 520   | 09                   | 4782                   | +2    | 520   | 59                   | 4893                   | +2    | 520   |
| 8.9010               | 0.000 4570             | +2    | 9.520 | 8.9060               | 0.000 4676             | +2    | 9.520 | 8.9110               | 0.000 4784             | +2    | 9.520 | 8.9160               | 0.000 4895             | +2    | 9.520 |
| 11                   | 4572                   | +2    | 520   | 61                   | 4678                   | +2    | 520   | 11                   | 4786                   | +2    | 520   | 61                   | 4897                   | +2    | 520   |
| 12                   | 4574                   | +2    | 520   | 62                   | 4680                   | +2    | 520   | 12                   | 4789                   | +2    | 520   | 62                   | 4900                   | +3    | 520   |
| 13                   | 4576                   | +2    | 520   | 63                   | 4682                   | +2    | 520   | 13                   | 4791                   | +2    | 520   | 63                   | 4902                   | +2    | 520   |
| 14                   | 4578                   | +2    | 520   | 64                   | 4684                   | +3    | 520   | 14                   | 4793                   | +2    | 520   | 64                   | 4904                   | +2    | 520   |
| 8.9015               | 0.000 4580             | +2    | 9.520 | 8.9065               | 0.000 4687             | +2    | 9.520 | 8.9115               | 0.000 4795             | +2    | 9.520 | 8.9165               | 0.000 4906             | +2    | 9.520 |
| 16                   | 4582                   | +2    | 520   | 66                   | 4689                   | +2    | 520   | 16                   | 4797                   | +2    | 520   | 66                   | 4909                   | +3    | 520   |
| 17                   | 4584                   | +2    | 520   | 67                   | 4691                   | +2    | 520   | 17                   | 4800                   | +2    | 520   | 67                   | 4911                   | +2    | 520   |
| 18                   | 4587                   | +3    | 520   | 68                   | 4693                   | +2    | 520   | 18                   | 4802                   | +2    | 520   | 68                   | 4913                   | +2    | 520   |
| 19                   | 4589                   | +2    | 520   | 69                   | 4695                   | +2    | 520   | 19                   | 4804                   | +2    | 520   | 69                   | 4915                   | +3    | 520   |
| 8.9020               | 0.000 4591             | +2    | 9.520 | 8.9070               | 0.000 4697             | +2    | 9.520 | 8.9120               | 0.000 4806             | +2    | 9.520 | 8.9170               | 0.000 4918             | +2    | 9.520 |
| 21                   | 4593                   | +2    | 520   | 71                   | 4699                   | +3    | 520   | 21                   | 4808                   | +3    | 520   | 71                   | 4920                   | +2    | 520   |
| 22                   | 4595                   | +2    | 520   | 72                   | 4702                   | +2    | 520   | 22                   | 4811                   | +2    | 520   | 72                   | 4922                   | +2    | 520   |
| 23                   | 4597                   | +2    | 520   | 73                   | 4704                   | +2    | 520   | 23                   | 4813                   | +2    | 520   | 73                   | 4924                   | +3    | 520   |
| 24                   | 4599                   | +2    | 520   | 74                   | 4706                   | +2    | 520   | 24                   | 4815                   | +2    | 520   | 74                   | 4927                   | +2    | 520   |
| 8.9025               | 0.000 4601             | +2    | 9.520 | 8.9075               | 0.000 4708             | +2    | 9.520 | 8.9125               | 0.000 4817             | +2    | 9.520 | 8.9175               | 0.000 4929             | +2    | 9.520 |
| 26                   | 4603                   | +3    | 520   | 76                   | 4710                   | +2    | 520   | 26                   | 4819                   | +2    | 520   | 76                   | 4931                   | +2    | 520   |
| 27                   | 4606                   | +2    | 520   | 77                   | 4712                   | +3    | 520   | 27                   | 4822                   | +3    | 520   | 77                   | 4934                   | +3    | 520   |
| 28                   | 4608                   | +2    | 520   | 78                   | 4715                   | +2    | 520   | 28                   | 4824                   | +2    | 520   | 78                   | 4936                   | +2    | 520   |
| 29                   | 4610                   | +2    | 520   | 79                   | 4717                   | +2    | 520   | 29                   | 4826                   | +2    | 520   | 79                   | 4938                   | +2    | 520   |
| 8.9030               | 0.000 4612             | +2    | 9.520 | 8.9080               | 0.000 4719             | +2    | 9.520 | 8.9130               | 0.000 4828             | +2    | 9.520 | 8.9180               | 0.000 4940             | +2    | 9.520 |
| 31                   | 4614                   | +2    | 520   | 81                   | 4721                   | +2    | 520   | 31                   | 4831                   | +3    | 520   | 81                   | 4943                   | +3    | 520   |
| 32                   | 4616                   | +2    | 520   | 82                   | 4723                   | +2    | 520   | 32                   | 4833                   | +2    | 520   | 82                   | 4945                   | +2    | 520   |
| 33                   | 4618                   | +2    | 520   | 83                   | 4725                   | +3    | 520   | 33                   | 4835                   | +2    | 520   | 83                   | 4947                   | +2    | 520   |
| 34                   | 4620                   | +2    | 520   | 84                   | 4728                   | +2    | 520   | 34                   | 4837                   | +2    | 520   | 84                   | 4949                   | +3    | 520   |
| 8.9035               | 0.000 4622             | +3    | 9.520 | 8.9085               | 0.000 4730             | +2    | 9.520 | 8.9135               | 0.000 4839             | +3    | 9.520 | 8.9185               | 0.000 4952             | +2    | 9.520 |
| 36                   | 4625                   | +2    | 520   | 86                   | 4732                   | +2    | 520   | 36                   | 4842                   | +2    | 520   | 86                   | 4954                   | +2    | 520   |
| 37                   | 4627                   | +2    | 520   | 87                   | 4734                   | +2    | 520   | 37                   | 4844                   | +2    | 520   | 87                   | 4956                   | +2    | 520   |
| 38                   | 4629                   | +2    | 520   | 88                   | 4736                   | +2    | 520   | 38                   | 4846                   | +2    | 520   | 88                   | 4958                   | +2    | 520   |
| 39                   | 4631                   | +2    | 520   | 89                   | 4738                   | +3    | 520   | 39                   | 4848                   | +3    | 520   | 89                   | 4961                   | +3    | 520   |
| 8.9040               | 0.000 4633             | +2    | 9.520 | 8.9090               | 0.000 4741             | +2    | 9.520 | 8.9140               | 0.000 4851             | +2    | 9.520 | 8.9190               | 0.000 4963             | +2    | 9.520 |
| 41                   | 4635                   | +2    | 520   | 91                   | 4743                   | +2    | 520   | 41                   | 4853                   | +2    | 520   | 91                   | 4965                   | +2    | 520   |
| 42                   | 4637                   | +2    | 520   | 92                   | 4745                   | +2    | 520   | 42                   | 4855                   | +2    | 520   | 92                   | 4968                   | +3    | 520   |
| 43                   | 4639                   | +2    | 520   | 93                   | 4747                   | +2    | 520   | 43                   | 4857                   | +2    | 520   | 93                   | 4970                   | +2    | 520   |
| 44                   | 4642                   | +2    | 520   | 94                   | 4749                   | +2    | 520   | 44                   | 4859                   | +3    | 520   | 94                   | 4972                   | +2    | 520   |
| 8.9045               | 0.000 4644             | +2    | 9.520 | 8.9095               | 0.000 4751             | +3    | 9.520 | 8.9145               | 0.000 4862             | +2    | 9.520 | 8.9195               | 0.000 4974             | +2    | 9.520 |
| 46                   | 4646                   | +2    | 520   | 96                   | 4754                   | +2    | 520   | 46                   | 4864                   | +2    | 520   | 96                   | 4977                   | +3    | 520   |
| 47                   | 4648                   | +2    | 520   | 97                   | 4756                   | +2    | 520   | 47                   | 4866                   | +2    | 520   | 97                   | 4979                   | +2    | 520   |
| 48                   | 4650                   | +2    | 520   | 98                   | 4758                   | +2    | 520   | 48                   | 4868                   | +2    | 520   | 98                   | 4981                   | +2    | 520   |
| 49                   | 4652                   | +2    | 520   | 99                   | 4760                   | +2    | 520   | 49                   | 4871                   | +3    | 520   | 99                   | 4984                   | +3    | 520   |
| 8.9050               | 0.000 4654             |       | 9.520 | 8.9100               | 0.000 4762             |       | 9.520 | 8.9150               | 0.000 4873             |       | 9.520 | 8.9200               | 0.000 4986             |       | 9.520 |

| log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log y | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log y | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log y | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log y |
|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|
| 8.9200              | 0.000 4986             | +2    | 9.520 | 8.9250              | 0.000 5101             | +3    | 9.520 | 8.9300              | 0.000 5220             | +2    | 9.519 | 8.9350              | 0.000 5341             | +2    | 9.519 |
| 01                  | 4988                   | +2    | 520   | 51                  | 5104                   | +3    | 520   | 01                  | 5222                   | +2    | 519   | 51                  | 5343                   | +3    | 519   |
| 02                  | 4990                   | +3    | 520   | 52                  | 5106                   | +2    | 520   | 02                  | 5224                   | +3    | 519   | 52                  | 5346                   | +2    | 519   |
| 03                  | 4993                   | +2    | 520   | 53                  | 5108                   | +3    | 520   | 03                  | 5227                   | +2    | 519   | 53                  | 5348                   | +3    | 519   |
| 04                  | 4995                   | +2    | 520   | 54                  | 5111                   | +2    | 520   | 04                  | 5229                   | +3    | 519   | 54                  | 5351                   | +2    | 519   |
| 8.9205              | 0.000 4997             | +3    | 9.520 | 8.9255              | 0.000 5113             | +2    | 9.520 | 8.9305              | 0.000 5232             | +2    | 9.519 | 8.9355              | 0.000 5353             | +2    | 9.519 |
| 06                  | 5000                   | +2    | 520   | 56                  | 5115                   | +3    | 519   | 00                  | 5234                   | +2    | 519   | 50                  | 5355                   | +3    | 519   |
| 07                  | 5002                   | +2    | 520   | 57                  | 5118                   | +2    | 519   | 07                  | 5230                   | +3    | 519   | 57                  | 5358                   | +2    | 519   |
| 08                  | 5004                   | +2    | 520   | 58                  | 5120                   | +3    | 519   | 08                  | 5239                   | +2    | 519   | 58                  | 5360                   | +3    | 519   |
| 09                  | 5006                   | +3    | 520   | 59                  | 5123                   | +2    | 519   | 09                  | 5241                   | +3    | 519   | 59                  | 5363                   | +2    | 519   |
| 8.9210              | 0.000 5009             | +2    | 9.520 | 8.9260              | 0.000 5125             | +2    | 9.519 | 8.9310              | 0.000 5244             | +2    | 9.519 | 8.9360              | 0.000 5365             | +3    | 9.519 |
| 11                  | 5011                   | +2    | 520   | 61                  | 5127                   | +3    | 519   | 11                  | 5240                   | +3    | 519   | 61                  | 5368                   | +2    | 519   |
| 12                  | 5013                   | +3    | 520   | 62                  | 5130                   | +2    | 519   | 12                  | 5249                   | +2    | 519   | 62                  | 5370                   | +3    | 519   |
| 13                  | 5016                   | +2    | 520   | 63                  | 5132                   | +2    | 519   | 13                  | 5251                   | +2    | 519   | 63                  | 5373                   | +2    | 519   |
| 14                  | 5018                   | +2    | 520   | 64                  | 5134                   | +3    | 519   | 14                  | 5253                   | +3    | 519   | 64                  | 5375                   | +3    | 519   |
| 8.9215              | 0.000 5020             | +3    | 9.520 | 8.9265              | 0.000 5137             | +2    | 9.519 | 8.9315              | 0.000 5256             | +2    | 9.519 | 8.9365              | 0.000 5378             | +2    | 9.519 |
| 16                  | 5023                   | +2    | 520   | 66                  | 5139                   | +2    | 519   | 16                  | 5258                   | +2    | 519   | 66                  | 5380                   | +3    | 519   |
| 17                  | 5025                   | +2    | 520   | 67                  | 5141                   | +3    | 519   | 17                  | 5261                   | +3    | 519   | 67                  | 5383                   | +2    | 519   |
| 18                  | 5027                   | +2    | 520   | 68                  | 5144                   | +2    | 519   | 18                  | 5263                   | +2    | 519   | 68                  | 5385                   | +2    | 519   |
| 19                  | 5029                   | +3    | 520   | 69                  | 5146                   | +2    | 519   | 19                  | 5265                   | +3    | 519   | 69                  | 5387                   | +3    | 519   |
| 8.9220              | 0.000 5032             | +2    | 9.520 | 8.9270              | 0.000 5148             | +3    | 9.519 | 8.9320              | 0.000 5268             | +2    | 9.519 | 8.9370              | 0.000 5390             | +2    | 9.519 |
| 21                  | 5034                   | +2    | 520   | 71                  | 5151                   | +2    | 519   | 21                  | 5270                   | +3    | 519   | 71                  | 5392                   | +3    | 519   |
| 22                  | 5036                   | +3    | 520   | 72                  | 5153                   | +3    | 519   | 22                  | 5273                   | +2    | 519   | 72                  | 5395                   | +2    | 519   |
| 23                  | 5039                   | +2    | 520   | 73                  | 5156                   | +2    | 519   | 23                  | 5275                   | +2    | 519   | 73                  | 5397                   | +3    | 519   |
| 24                  | 5041                   | +2    | 520   | 74                  | 5158                   | +2    | 519   | 24                  | 5277                   | +3    | 519   | 74                  | 5400                   | +2    | 519   |
| 8.9225              | 0.000 5043             | +3    | 9.520 | 8.9275              | 0.000 5160             | +2    | 9.519 | 8.9325              | 0.000 5280             | +2    | 9.519 | 8.9375              | 0.000 5402             | +3    | 9.519 |
| 26                  | 5046                   | +2    | 520   | 76                  | 5163                   | +2    | 519   | 26                  | 5282                   | +3    | 519   | 76                  | 5405                   | +2    | 519   |
| 27                  | 5048                   | +2    | 520   | 77                  | 5165                   | +2    | 519   | 27                  | 5285                   | +2    | 519   | 77                  | 5407                   | +3    | 519   |
| 28                  | 5050                   | +3    | 520   | 78                  | 5167                   | +2    | 519   | 28                  | 5287                   | +3    | 519   | 78                  | 5410                   | +2    | 519   |
| 29                  | 5053                   | +2    | 520   | 79                  | 5170                   | +3    | 519   | 29                  | 5290                   | +2    | 519   | 79                  | 5412                   | +3    | 519   |
| 8.9230              | 0.000 5055             | +2    | 9.520 | 8.9280              | 0.000 5172             | +2    | 9.519 | 8.9330              | 0.000 5292             | +2    | 9.519 | 8.9380              | 0.000 5415             | +2    | 9.519 |
| 31                  | 5057                   | +2    | 520   | 81                  | 5174                   | +3    | 519   | 31                  | 5294                   | +3    | 519   | 81                  | 5417                   | +3    | 519   |
| 32                  | 5059                   | +3    | 520   | 82                  | 5177                   | +2    | 519   | 32                  | 5297                   | +2    | 519   | 82                  | 5420                   | +2    | 519   |
| 33                  | 5062                   | +2    | 520   | 83                  | 5179                   | +3    | 519   | 33                  | 5299                   | +3    | 519   | 83                  | 5422                   | +3    | 519   |
| 34                  | 5064                   | +2    | 520   | 84                  | 5182                   | +2    | 519   | 34                  | 5302                   | +2    | 519   | 84                  | 5425                   | +2    | 519   |
| 8.9235              | 0.000 5066             | +3    | 9.520 | 8.9285              | 0.000 5184             | +2    | 9.519 | 8.9335              | 0.000 5304             | +2    | 9.519 | 8.9385              | 0.000 5427             | +3    | 9.519 |
| 36                  | 5069                   | +2    | 520   | 86                  | 5186                   | +2    | 519   | 36                  | 5307                   | +3    | 519   | 86                  | 5430                   | +2    | 519   |
| 37                  | 5071                   | +2    | 520   | 87                  | 5188                   | +3    | 519   | 37                  | 5309                   | +2    | 519   | 87                  | 5432                   | +3    | 519   |
| 38                  | 5073                   | +3    | 520   | 88                  | 5191                   | +2    | 519   | 38                  | 5311                   | +3    | 519   | 88                  | 5435                   | +2    | 519   |
| 39                  | 5076                   | +2    | 520   | 89                  | 5193                   | +3    | 519   | 39                  | 5314                   | +2    | 519   | 89                  | 5437                   | +3    | 519   |
| 8.9240              | 0.000 5078             | +2    | 9.520 | 8.9290              | 0.000 5196             | +2    | 9.519 | 8.9340              | 0.000 5316             | +3    | 9.519 | 8.9390              | 0.000 5440             | +2    | 9.519 |
| 41                  | 5080                   | +2    | 520   | 91                  | 5198                   | +3    | 519   | 41                  | 5319                   | +2    | 519   | 91                  | 5442                   | +3    | 519   |
| 42                  | 5083                   | +3    | 520   | 92                  | 5201                   | +2    | 519   | 42                  | 5321                   | +3    | 519   | 92                  | 5445                   | +2    | 519   |
| 43                  | 5085                   | +2    | 520   | 93                  | 5203                   | +2    | 519   | 43                  | 5324                   | +2    | 519   | 93                  | 5447                   | +3    | 519   |
| 44                  | 5087                   | +2    | 520   | 94                  | 5205                   | +3    | 519   | 44                  | 5326                   | +3    | 519   | 94                  | 5450                   | +2    | 519   |
| 8.9245              | 0.000 5090             | +2    | 9.520 | 8.9295              | 0.000 5208             | +2    | 9.519 | 8.9345              | 0.000 5329             | +2    | 9.519 | 8.9395              | 0.000 5452             | +3    | 9.519 |
| 46                  | 5092                   | +2    | 520   | 96                  | 5210                   | +3    | 519   | 46                  | 5331                   | +2    | 519   | 96                  | 5455                   | +2    | 519   |
| 47                  | 5094                   | +3    | 520   | 97                  | 5213                   | +2    | 519   | 47                  | 5333                   | +3    | 519   | 97                  | 5457                   | +3    | 519   |
| 48                  | 5097                   | +2    | 520   | 98                  | 5215                   | +2    | 519   | 48                  | 5336                   | +2    | 519   | 98                  | 5460                   | +2    | 519   |
| 49                  | 5099                   | +2    | 520   | 99                  | 5217                   | +3    | 519   | 49                  | 5338                   | +3    | 519   | 99                  | 5462                   | +3    | 519   |
| 8.9250              | 0.000 5101             |       | 9.520 | 8.9300              | 0.000 5220             |       | 9.519 | 8.9350              | 0.000 5341             |       | 9.519 | 8.9400              | 0.000 5465             |       | 9.519 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g |
|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|
| 8·9400               | 0·000 5465              | +2    | 9·519 | 8·9450               | 0·000 5591              | +3    | 9·519 | 8·9500               | 0·000 5721              | +2    | 9·519 | 8·9550               | 0·000 5853              | +3    | 9·519 |
| 01                   | 5467                    | +3    | 519   | 51                   | 5594                    | +2    | 519   | 01                   | 5723                    | +3    | 519   | 51                   | 5856                    | +3    | 519   |
| 02                   | 5470                    | +2    | 519   | 52                   | 5596                    | +3    | 519   | 02                   | 5726                    | +3    | 519   | 52                   | 5859                    | +2    | 519   |
| 03                   | 5472                    | +3    | 519   | 53                   | 5599                    | +2    | 519   | 03                   | 5729                    | +2    | 519   | 53                   | 5861                    | +3    | 519   |
| 04                   | 5475                    | +2    | 519   | 54                   | 5601                    | +3    | 519   | 04                   | 5731                    | +3    | 519   | 54                   | 5864                    | +3    | 519   |
| 8·9405               | 0·000 5477              | +3    | 9·519 | 8·9455               | 0·000 5604              | +3    | 9·519 | 8·9505               | 0·000 5734              | +3    | 9·519 | 8·9555               | 0·000 5867              | +2    | 9·519 |
| 06                   | 5480                    | +2    | 519   | 56                   | 5607                    | +2    | 519   | 06                   | 5737                    | +2    | 519   | 56                   | 5869                    | +3    | 519   |
| 07                   | 5482                    | +3    | 519   | 57                   | 5609                    | +3    | 519   | 07                   | 5739                    | +3    | 519   | 57                   | 5872                    | +3    | 519   |
| 08                   | 5485                    | +2    | 519   | 58                   | 5612                    | +2    | 519   | 08                   | 5742                    | +2    | 519   | 58                   | 5875                    | +3    | 519   |
| 09                   | 5487                    | +3    | 519   | 59                   | 5614                    | +3    | 519   | 09                   | 5744                    | +3    | 519   | 59                   | 5878                    | +2    | 519   |
| 8·9410               | 0·000 5490              | +2    | 9·519 | 8·9460               | 0·000 5617              | +2    | 9·519 | 8·9510               | 0·000 5747              | +3    | 9·519 | 8·9560               | 0·000 5880              | +3    | 9·519 |
| 11                   | 5492                    | +3    | 519   | 61                   | 5619                    | +3    | 519   | 11                   | 5750                    | +3    | 519   | 61                   | 5883                    | +3    | 519   |
| 12                   | 5495                    | +2    | 519   | 62                   | 5622                    | +3    | 519   | 12                   | 5752                    | +3    | 519   | 62                   | 5886                    | +2    | 519   |
| 13                   | 5497                    | +3    | 519   | 63                   | 5625                    | +2    | 519   | 13                   | 5755                    | +3    | 519   | 63                   | 5888                    | +3    | 519   |
| 14                   | 5500                    | +2    | 519   | 64                   | 5627                    | +3    | 519   | 14                   | 5758                    | +2    | 519   | 64                   | 5891                    | +3    | 519   |
| 8·9415               | 0·000 5502              | +3    | 9·519 | 8·9465               | 0·000 5630              | +2    | 9·519 | 8·9515               | 0·000 5760              | +3    | 9·519 | 8·9565               | 0·000 5894              | +2    | 9·519 |
| 16                   | 5505                    | +2    | 519   | 66                   | 5632                    | +3    | 519   | 16                   | 5763                    | +3    | 519   | 66                   | 5896                    | +3    | 519   |
| 17                   | 5507                    | +3    | 519   | 67                   | 5635                    | +3    | 519   | 17                   | 5766                    | +2    | 519   | 67                   | 5899                    | +3    | 519   |
| 18                   | 5510                    | +2    | 519   | 68                   | 5638                    | +2    | 519   | 18                   | 5768                    | +3    | 519   | 68                   | 5902                    | +3    | 519   |
| 19                   | 5512                    | +3    | 519   | 69                   | 5640                    | +3    | 519   | 19                   | 5771                    | +2    | 519   | 69                   | 5905                    | +2    | 519   |
| 8·9420               | 0·000 5515              | +2    | 9·519 | 8·9470               | 0·000 5643              | +2    | 9·519 | 8·9520               | 0·000 5773              | +3    | 9·519 | 8·9570               | 0·000 5907              | +3    | 9·519 |
| 21                   | 5517                    | +3    | 519   | 71                   | 5645                    | +3    | 519   | 21                   | 5776                    | +3    | 519   | 71                   | 5910                    | +3    | 519   |
| 22                   | 5520                    | +2    | 519   | 72                   | 5648                    | +2    | 519   | 22                   | 5779                    | +2    | 519   | 72                   | 5913                    | +2    | 519   |
| 23                   | 5522                    | +3    | 519   | 73                   | 5650                    | +3    | 519   | 23                   | 5781                    | +3    | 519   | 73                   | 5915                    | +3    | 519   |
| 24                   | 5525                    | +3    | 519   | 74                   | 5653                    | +3    | 519   | 24                   | 5784                    | +3    | 519   | 74                   | 5918                    | +3    | 519   |
| 8·9425               | 0·000 5528              | +2    | 9·519 | 8·9475               | 0·000 5656              | +2    | 9·519 | 8·9525               | 0·000 5787              | +2    | 9·519 | 8·9575               | 0·000 5921              | +2    | 9·519 |
| 26                   | 5530                    | +3    | 519   | 76                   | 5658                    | +3    | 519   | 26                   | 5789                    | +3    | 519   | 76                   | 5923                    | +3    | 519   |
| 27                   | 5533                    | +2    | 519   | 77                   | 5661                    | +2    | 519   | 27                   | 5792                    | +3    | 519   | 77                   | 5926                    | +3    | 519   |
| 28                   | 5535                    | +3    | 519   | 78                   | 5663                    | +3    | 519   | 28                   | 5795                    | +2    | 519   | 78                   | 5929                    | +3    | 519   |
| 29                   | 5538                    | +2    | 519   | 79                   | 5666                    | +3    | 519   | 29                   | 5797                    | +3    | 519   | 79                   | 5932                    | +2    | 519   |
| 8·9430               | 0·000 5540              | +3    | 9·519 | 8·9480               | 0·000 5669              | +2    | 9·519 | 8·9530               | 0·000 5800              | +3    | 9·519 | 8·9580               | 0·000 5934              | +3    | 9·519 |
| 31                   | 5543                    | +2    | 519   | 81                   | 5671                    | +3    | 519   | 31                   | 5803                    | +2    | 519   | 81                   | 5937                    | +3    | 519   |
| 32                   | 5545                    | +3    | 519   | 82                   | 5674                    | +2    | 519   | 32                   | 5805                    | +3    | 519   | 82                   | 5940                    | +3    | 519   |
| 33                   | 5548                    | +2    | 519   | 83                   | 5676                    | +3    | 519   | 33                   | 5808                    | +3    | 519   | 83                   | 5943                    | +2    | 519   |
| 34                   | 5550                    | +3    | 519   | 84                   | 5679                    | +3    | 519   | 34                   | 5811                    | +2    | 519   | 84                   | 5945                    | +3    | 519   |
| 8·9435               | 0·000 5553              | +2    | 9·519 | 8·9485               | 0·000 5682              | +2    | 9·519 | 8·9535               | 0·000 5813              | +3    | 9·519 | 8·9585               | 0·000 5948              | +3    | 9·519 |
| 36                   | 5555                    | +3    | 519   | 86                   | 5684                    | +3    | 519   | 36                   | 5816                    | +3    | 519   | 86                   | 5951                    | +2    | 519   |
| 37                   | 5558                    | +3    | 519   | 87                   | 5687                    | +2    | 519   | 37                   | 5819                    | +2    | 519   | 87                   | 5953                    | +3    | 519   |
| 38                   | 5561                    | +2    | 519   | 88                   | 5689                    | +3    | 519   | 38                   | 5821                    | +3    | 519   | 88                   | 5956                    | +3    | 519   |
| 39                   | 5563                    | +3    | 519   | 89                   | 5692                    | +3    | 519   | 39                   | 5824                    | +3    | 519   | 89                   | 5959                    | +3    | 519   |
| 8·9440               | 0·000 5566              | +2    | 9·519 | 8·9490               | 0·000 5695              | +2    | 9·519 | 8·9540               | 0·000 5827              | +2    | 9·519 | 8·9590               | 0·000 5962              | +2    | 9·519 |
| 41                   | 5568                    | +3    | 519   | 91                   | 5697                    | +3    | 519   | 41                   | 5829                    | +3    | 519   | 91                   | 5964                    | +3    | 519   |
| 42                   | 5571                    | +2    | 519   | 92                   | 5700                    | +2    | 519   | 42                   | 5832                    | +3    | 519   | 92                   | 5967                    | +3    | 519   |
| 43                   | 5573                    | +3    | 519   | 93                   | 5702                    | +3    | 519   | 43                   | 5835                    | +3    | 519   | 93                   | 5970                    | +3    | 519   |
| 44                   | 5576                    | +2    | 519   | 94                   | 5705                    | +3    | 519   | 44                   | 5837                    | +3    | 519   | 94                   | 5973                    | +2    | 519   |
| 8·9445               | 0·000 5578              | +3    | 9·519 | 8·9495               | 0·000 5708              | +2    | 9·519 | 8·9545               | 0·000 5840              | +3    | 9·519 | 8·9595               | 0·000 5975              | +3    | 9·519 |
| 46                   | 5581                    | +3    | 519   | 96                   | 5710                    | +3    | 519   | 46                   | 5843                    | +2    | 519   | 96                   | 5978                    | +3    | 519   |
| 47                   | 5584                    | +2    | 519   | 97                   | 5713                    | +3    | 519   | 47                   | 5845                    | +3    | 519   | 97                   | 5981                    | +2    | 519   |
| 48                   | 5586                    | +3    | 519   | 98                   | 5716                    | +2    | 519   | 48                   | 5848                    | +3    | 519   | 98                   | 5983                    | +3    | 519   |
| 49                   | 5589                    | +2    | 519   | 99                   | 5718                    | +3    | 519   | 49                   | 5851                    | +2    | 519   | 99                   | 5986                    | +3    | 519   |
| 8·9450               | 0·000 5591              |       | 9·519 | 8·9500               | 0·000 5721              |       | 9·519 | 8·9550               | 0·000 5853              |       | 9·519 | 8·9600               | 0·000 5989              |       | 9·519 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g |
|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|
| 8.9600               | 0.000 5989              | +3    | 9.519 | 8.9650               | 0.000 6128              | +3    | 9.519 | 8.9700               | 0.000 6270              | +3    | 9.519 | 8.9750               | 0.000 6415              | +3    | 9.519 |
| 01                   | 5992                    | +2    | 519   | 51                   | 6131                    | +3    | 519   | 01                   | 6273                    | +3    | 519   | 51                   | 6418                    | +3    | 519   |
| 02                   | 5994                    | +3    | 519   | 52                   | 6133                    | +3    | 519   | 02                   | 6275                    | +3    | 519   | 52                   | 6421                    | +3    | 519   |
| 03                   | 5997                    | +3    | 519   | 53                   | 6136                    | +3    | 519   | 03                   | 6278                    | +3    | 519   | 53                   | 6424                    | +3    | 519   |
| 04                   | 6000                    | +3    | 519   | 54                   | 6139                    | +3    | 519   | 04                   | 6281                    | +3    | 519   | 54                   | 6427                    | +3    | 519   |
| 8.9605               | 0.000 6003              | +2    | 9.519 | 8.9655               | 0.000 6142              | +3    | 9.519 | 8.9705               | 0.000 6284              | +3    | 9.519 | 8.9755               | 0.000 6430              | +3    | 9.519 |
| 06                   | 6005                    | +3    | 519   | 56                   | 6145                    | +2    | 519   | 06                   | 6287                    | +3    | 519   | 56                   | 6433                    | +3    | 519   |
| 07                   | 6008                    | +3    | 519   | 57                   | 6147                    | +3    | 519   | 07                   | 6290                    | +3    | 519   | 57                   | 6436                    | +2    | 519   |
| 08                   | 6011                    | +3    | 519   | 58                   | 6150                    | +3    | 519   | 08                   | 6293                    | +3    | 519   | 58                   | 6438                    | +3    | 519   |
| 09                   | 6014                    | +2    | 519   | 59                   | 6153                    | +3    | 519   | 09                   | 6296                    | +2    | 519   | 59                   | 6441                    | +3    | 519   |
| 8.9610               | 0.000 6016              | +3    | 9.519 | 8.9660               | 0.000 6156              | +3    | 9.519 | 8.9710               | 0.000 6298              | +3    | 9.519 | 8.9760               | 0.000 6444              | +3    | 9.519 |
| 11                   | 6019                    | +3    | 519   | 61                   | 6159                    | +3    | 519   | 11                   | 6301                    | +3    | 519   | 61                   | 6447                    | +3    | 519   |
| 12                   | 6022                    | +3    | 519   | 62                   | 6162                    | +2    | 519   | 12                   | 6304                    | +3    | 519   | 62                   | 6450                    | +3    | 519   |
| 13                   | 6025                    | +3    | 519   | 63                   | 6164                    | +3    | 519   | 13                   | 6307                    | +3    | 519   | 63                   | 6453                    | +3    | 519   |
| 14                   | 6028                    | +2    | 519   | 64                   | 6167                    | +3    | 519   | 14                   | 6310                    | +3    | 519   | 64                   | 6456                    | +3    | 519   |
| 8.9615               | 0.000 6030              | +3    | 9.519 | 8.9665               | 0.000 6170              | +3    | 9.519 | 8.9715               | 0.000 6313              | +3    | 9.519 | 8.9765               | 0.000 6459              | +3    | 9.519 |
| 16                   | 6033                    | +3    | 519   | 66                   | 6173                    | +3    | 519   | 16                   | 6316                    | +3    | 519   | 66                   | 6462                    | +3    | 519   |
| 17                   | 6036                    | +3    | 519   | 67                   | 6176                    | +2    | 519   | 17                   | 6319                    | +3    | 519   | 67                   | 6465                    | +3    | 519   |
| 18                   | 6039                    | +2    | 519   | 68                   | 6178                    | +3    | 519   | 18                   | 6322                    | +2    | 519   | 68                   | 6468                    | +3    | 519   |
| 19                   | 6041                    | +3    | 519   | 69                   | 6181                    | +3    | 519   | 19                   | 6324                    | +3    | 519   | 69                   | 6471                    | +3    | 519   |
| 8.9620               | 0.000 6044              | +3    | 9.519 | 8.9670               | 0.000 6184              | +3    | 9.519 | 8.9720               | 0.000 6327              | +3    | 9.519 | 8.9770               | 0.000 6474              | +3    | 9.519 |
| 21                   | 6047                    | +3    | 519   | 71                   | 6187                    | +3    | 519   | 21                   | 6330                    | +3    | 519   | 71                   | 6477                    | +3    | 519   |
| 22                   | 6050                    | +2    | 519   | 72                   | 6190                    | +3    | 519   | 22                   | 6333                    | +3    | 519   | 72                   | 6480                    | +3    | 519   |
| 23                   | 6052                    | +3    | 519   | 73                   | 6193                    | +2    | 519   | 23                   | 6336                    | +3    | 519   | 73                   | 6483                    | +3    | 519   |
| 24                   | 6055                    | +3    | 519   | 74                   | 6195                    | +3    | 519   | 24                   | 6339                    | +3    | 519   | 74                   | 6486                    | +3    | 519   |
| 8.9625               | 0.000 6058              | +3    | 9.519 | 8.9675               | 0.000 6198              | +3    | 9.519 | 8.9725               | 0.000 6342              | +3    | 9.519 | 8.9775               | 0.000 6489              | +3    | 9.519 |
| 26                   | 6061                    | +3    | 519   | 76                   | 6201                    | +3    | 519   | 26                   | 6345                    | +3    | 519   | 76                   | 6492                    | +3    | 519   |
| 27                   | 6064                    | +2    | 519   | 77                   | 6204                    | +3    | 519   | 27                   | 6348                    | +3    | 519   | 77                   | 6495                    | +3    | 519   |
| 28                   | 6066                    | +3    | 519   | 78                   | 6207                    | +3    | 519   | 28                   | 6351                    | +3    | 519   | 78                   | 6498                    | +3    | 519   |
| 29                   | 6069                    | +3    | 519   | 79                   | 6210                    | +3    | 519   | 29                   | 6354                    | +2    | 519   | 79                   | 6501                    | +3    | 519   |
| 8.9630               | 0.000 6072              | +3    | 9.519 | 8.9680               | 0.000 6213              | +2    | 9.519 | 8.9730               | 0.000 6350              | +3    | 9.519 | 8.9780               | 0.000 6504              | +3    | 9.519 |
| 31                   | 6075                    | +2    | 519   | 81                   | 6215                    | +3    | 519   | 31                   | 6359                    | +3    | 519   | 81                   | 6507                    | +3    | 519   |
| 32                   | 6077                    | +3    | 519   | 82                   | 6218                    | +3    | 519   | 32                   | 6362                    | +3    | 519   | 82                   | 6510                    | +3    | 519   |
| 33                   | 6080                    | +3    | 519   | 83                   | 6221                    | +3    | 519   | 33                   | 6365                    | +3    | 519   | 83                   | 6513                    | +3    | 519   |
| 34                   | 6083                    | +3    | 519   | 84                   | 6224                    | +3    | 519   | 34                   | 6368                    | +3    | 519   | 84                   | 6516                    | +3    | 519   |
| 8.9635               | 0.000 6086              | +3    | 9.519 | 8.9685               | 0.000 6227              | +3    | 9.519 | 8.9735               | 0.000 6371              | +3    | 9.519 | 8.9785               | 0.000 6519              | +3    | 9.519 |
| 36                   | 6089                    | +2    | 519   | 86                   | 6230                    | +2    | 519   | 36                   | 6374                    | +3    | 519   | 86                   | 6522                    | +3    | 519   |
| 37                   | 6091                    | +3    | 519   | 87                   | 6232                    | +3    | 519   | 37                   | 6377                    | +3    | 519   | 87                   | 6525                    | +3    | 519   |
| 38                   | 6094                    | +3    | 519   | 88                   | 6235                    | +3    | 519   | 38                   | 6380                    | +3    | 519   | 88                   | 6528                    | +3    | 519   |
| 39                   | 6097                    | +3    | 519   | 89                   | 6238                    | +3    | 519   | 39                   | 6383                    | +3    | 519   | 89                   | 6531                    | +2    | 519   |
| 8.9640               | 0.000 6100              | +3    | 9.519 | 8.9690               | 0.000 6241              | +3    | 9.519 | 8.9740               | 0.000 6386              | +3    | 9.519 | 8.9790               | 0.000 6533              | +3    | 9.519 |
| 41                   | 6103                    | +2    | 519   | 91                   | 6244                    | +3    | 519   | 41                   | 6389                    | +2    | 519   | 91                   | 6536                    | +3    | 519   |
| 42                   | 6105                    | +3    | 519   | 92                   | 6247                    | +3    | 519   | 42                   | 6391                    | +3    | 519   | 92                   | 6539                    | +3    | 519   |
| 43                   | 6108                    | +3    | 519   | 93                   | 6250                    | +2    | 519   | 43                   | 6394                    | +3    | 519   | 93                   | 6542                    | +3    | 519   |
| 44                   | 6111                    | +3    | 519   | 94                   | 6252                    | +2    | 519   | 44                   | 6397                    | +3    | 519   | 94                   | 6545                    | +3    | 519   |
| 8.9645               | 0.000 6114              | +3    | 9.519 | 8.9695               | 0.000 6255              | +3    | 9.519 | 8.9745               | 0.000 6400              | +3    | 9.519 | 8.9795               | 0.000 6548              | +3    | 9.519 |
| 46                   | 6117                    | +2    | 519   | 96                   | 6258                    | +3    | 519   | 46                   | 6403                    | +3    | 519   | 96                   | 6551                    | +3    | 519   |
| 47                   | 6119                    | +3    | 519   | 97                   | 6261                    | +3    | 519   | 47                   | 6406                    | +3    | 519   | 97                   | 6554                    | +3    | 519   |
| 48                   | 6122                    | +3    | 519   | 98                   | 6264                    | +3    | 519   | 48                   | 6409                    | +3    | 519   | 98                   | 6557                    | +3    | 519   |
| 49                   | 6125                    | +3    | 519   | 99                   | 6267                    | +3    | 519   | 49                   | 6412                    | +3    | 519   | 99                   | 6560                    | +3    | 519   |
| 8.9650               | 0.000 6128              |       | 9.519 | 8.9700               | 0.000 6270              |       | 9.519 | 8.9750               | 0.000 6415              |       | 9.519 | 8.9800               | 0.000 6563              |       | 9.519 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff.  | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g  |       |      |    |       |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|--------|-------|----------------------|------------------------|-------|--------|-------|------|----|-------|
| 8.9800               | 0.000                  | 0563  | +3    | 9.519                | 8.9850                 | 0.000 | 6715  | +4                   | 9.518                  | 8.9900 | 0.000 | 6871                 | +3                     | 9.518 | 8.9950 | 0.000 | 7030 | +3 | 9.518 |
| 01                   | 0566                   | +3    | 519   | 51                   | 51                     | 0719  | +3    | 518                  | 01                     | 6874   | +3    | 518                  | 51                     | 7033  | +3     | 518   |      |    |       |
| 02                   | 0569                   | +4    | 519   | 52                   | 52                     | 0722  | +3    | 518                  | 02                     | 6877   | +3    | 518                  | 52                     | 7036  | +4     | 518   |      |    |       |
| 03                   | 0573                   | +3    | 519   | 53                   | 53                     | 0725  | +3    | 518                  | 03                     | 6880   | +4    | 518                  | 53                     | 7040  | +3     | 518   |      |    |       |
| 04                   | 0576                   | +3    | 519   | 54                   | 54                     | 0728  | +3    | 518                  | 04                     | 6884   | +3    | 518                  | 54                     | 7043  | +3     | 518   |      |    |       |
| 8.9805               | 0.000                  | 6579  | +3    | 9.519                | 8.9855                 | 0.000 | 6731  | +3                   | 9.518                  | 8.9905 | 0.000 | 6887                 | +3                     | 9.518 | 8.9955 | 0.000 | 7040 | +3 | 9.518 |
| 00                   | 6582                   | +3    | 519   | 56                   | 56                     | 0734  | +3    | 518                  | 00                     | 6890   | +3    | 518                  | 56                     | 7049  | +4     | 518   |      |    |       |
| 07                   | 6585                   | +3    | 519   | 57                   | 57                     | 0737  | +3    | 518                  | 07                     | 6893   | +3    | 518                  | 57                     | 7053  | +3     | 518   |      |    |       |
| 08                   | 6588                   | +3    | 519   | 58                   | 58                     | 0740  | +3    | 518                  | 08                     | 6896   | +3    | 518                  | 58                     | 7056  | +3     | 518   |      |    |       |
| 09                   | 6591                   | +3    | 519   | 59                   | 59                     | 0743  | +3    | 518                  | 09                     | 6899   | +3    | 518                  | 59                     | 7059  | +3     | 518   |      |    |       |
| 8.9810               | 0.000                  | 6594  | +3    | 9.519                | 8.9860                 | 0.000 | 6746  | +3                   | 9.518                  | 8.9910 | 0.000 | 6902                 | +4                     | 9.518 | 8.9960 | 0.000 | 7062 | +3 | 9.518 |
| 11                   | 6597                   | +3    | 519   | 61                   | 61                     | 0749  | +3    | 518                  | 11                     | 6906   | +4    | 518                  | 61                     | 7065  | +4     | 518   |      |    |       |
| 12                   | 6600                   | +3    | 519   | 62                   | 62                     | 0752  | +4    | 518                  | 12                     | 6909   | +4    | 518                  | 62                     | 7069  | +3     | 518   |      |    |       |
| 13                   | 6603                   | +3    | 519   | 63                   | 63                     | 0756  | +3    | 518                  | 13                     | 6912   | +3    | 518                  | 63                     | 7072  | +3     | 518   |      |    |       |
| 14                   | 6606                   | +3    | 519   | 64                   | 64                     | 0759  | +3    | 518                  | 14                     | 6915   | +3    | 518                  | 64                     | 7075  | +3     | 518   |      |    |       |
| 8.9815               | 0.000                  | 6609  | +3    | 9.519                | 8.9865                 | 0.000 | 6762  | +3                   | 9.518                  | 8.9915 | 0.000 | 6918                 | +3                     | 9.518 | 8.9965 | 0.000 | 7078 | +4 | 9.518 |
| 16                   | 6612                   | +3    | 519   | 66                   | 66                     | 0765  | +3    | 518                  | 16                     | 6921   | +4    | 518                  | 66                     | 7082  | +3     | 518   |      |    |       |
| 17                   | 6615                   | +3    | 519   | 67                   | 67                     | 0768  | +3    | 518                  | 17                     | 6925   | +3    | 518                  | 67                     | 7085  | +3     | 518   |      |    |       |
| 18                   | 6618                   | +3    | 519   | 68                   | 68                     | 0771  | +3    | 518                  | 18                     | 6928   | +3    | 518                  | 68                     | 7088  | +3     | 518   |      |    |       |
| 19                   | 6621                   | +3    | 519   | 69                   | 69                     | 0774  | +3    | 518                  | 19                     | 6931   | +3    | 518                  | 69                     | 7091  | +4     | 518   |      |    |       |
| 8.9820               | 0.000                  | 6624  | +3    | 9.519                | 8.9870                 | 0.000 | 6777  | +3                   | 9.518                  | 8.9920 | 0.000 | 6934                 | +3                     | 9.518 | 8.9970 | 0.000 | 7095 | +3 | 9.518 |
| 21                   | 6627                   | +3    | 518   | 71                   | 71                     | 0780  | +3    | 518                  | 21                     | 6937   | +3    | 518                  | 71                     | 7098  | +3     | 518   |      |    |       |
| 22                   | 6630                   | +3    | 518   | 72                   | 72                     | 0783  | +4    | 518                  | 22                     | 6940   | +4    | 518                  | 72                     | 7101  | +3     | 518   |      |    |       |
| 23                   | 6633                   | +3    | 518   | 73                   | 73                     | 0787  | +3    | 518                  | 23                     | 6944   | +3    | 518                  | 73                     | 7104  | +4     | 518   |      |    |       |
| 24                   | 6636                   | +3    | 518   | 74                   | 74                     | 0790  | +3    | 518                  | 24                     | 6947   | +3    | 518                  | 74                     | 7108  | +3     | 518   |      |    |       |
| 8.9825               | 0.000                  | 6639  | +3    | 9.518                | 8.9875                 | 0.000 | 6793  | +3                   | 9.518                  | 8.9925 | 0.000 | 6950                 | +3                     | 9.518 | 8.9975 | 0.000 | 7111 | +3 | 9.518 |
| 26                   | 6642                   | +3    | 518   | 76                   | 76                     | 0796  | +3    | 518                  | 26                     | 6953   | +3    | 518                  | 76                     | 7114  | +3     | 518   |      |    |       |
| 27                   | 6645                   | +3    | 518   | 77                   | 77                     | 0799  | +3    | 518                  | 27                     | 6956   | +4    | 518                  | 77                     | 7117  | +4     | 518   |      |    |       |
| 28                   | 6648                   | +3    | 518   | 78                   | 78                     | 0802  | +3    | 518                  | 28                     | 6960   | +3    | 518                  | 78                     | 7121  | +3     | 518   |      |    |       |
| 29                   | 6651                   | +3    | 518   | 79                   | 79                     | 0805  | +3    | 518                  | 29                     | 6963   | +3    | 518                  | 79                     | 7124  | +3     | 518   |      |    |       |
| 8.9830               | 0.000                  | 6654  | +3    | 9.518                | 8.9880                 | 0.000 | 6808  | +3                   | 9.518                  | 8.9930 | 0.000 | 6966                 | +3                     | 9.518 | 8.9980 | 0.000 | 7127 | +3 | 9.518 |
| 31                   | 6657                   | +3    | 518   | 81                   | 81                     | 0811  | +4    | 518                  | 31                     | 6969   | +3    | 518                  | 81                     | 7130  | +4     | 518   |      |    |       |
| 32                   | 6660                   | +3    | 518   | 82                   | 82                     | 0815  | +3    | 518                  | 32                     | 6972   | +4    | 518                  | 82                     | 7134  | +3     | 518   |      |    |       |
| 33                   | 6663                   | +3    | 518   | 83                   | 83                     | 0818  | +3    | 518                  | 33                     | 6976   | +3    | 518                  | 83                     | 7137  | +3     | 518   |      |    |       |
| 34                   | 6666                   | +4    | 518   | 84                   | 84                     | 0821  | +3    | 518                  | 34                     | 6979   | +3    | 518                  | 84                     | 7140  | +4     | 518   |      |    |       |
| 8.9835               | 0.000                  | 6670  | +3    | 9.518                | 8.9885                 | 0.000 | 6824  | +3                   | 9.518                  | 8.9935 | 0.000 | 6982                 | +3                     | 9.518 | 8.9985 | 0.000 | 7144 | +3 | 9.518 |
| 36                   | 6673                   | +3    | 518   | 86                   | 86                     | 0827  | +3    | 518                  | 36                     | 6985   | +3    | 518                  | 86                     | 7147  | +3     | 518   |      |    |       |
| 37                   | 6676                   | +3    | 518   | 87                   | 87                     | 0830  | +3    | 518                  | 37                     | 6988   | +3    | 518                  | 87                     | 7150  | +3     | 518   |      |    |       |
| 38                   | 6679                   | +3    | 518   | 88                   | 88                     | 0833  | +3    | 518                  | 38                     | 6992   | +3    | 518                  | 88                     | 7153  | +4     | 518   |      |    |       |
| 39                   | 6682                   | +3    | 518   | 89                   | 89                     | 0836  | +4    | 518                  | 39                     | 6995   | +3    | 518                  | 89                     | 7157  | +3     | 518   |      |    |       |
| 8.9840               | 0.000                  | 6685  | +3    | 9.518                | 8.9890                 | 0.000 | 6840  | +3                   | 9.518                  | 8.9940 | 0.000 | 6998                 | +3                     | 9.518 | 8.9990 | 0.000 | 7160 | +3 | 9.518 |
| 41                   | 6688                   | +3    | 518   | 91                   | 91                     | 0843  | +3    | 518                  | 41                     | 7001   | +3    | 518                  | 91                     | 7163  | +3     | 518   |      |    |       |
| 42                   | 6691                   | +3    | 518   | 92                   | 92                     | 0846  | +3    | 518                  | 42                     | 7004   | +4    | 518                  | 92                     | 7166  | +4     | 518   |      |    |       |
| 43                   | 6694                   | +3    | 518   | 93                   | 93                     | 0849  | +3    | 518                  | 43                     | 7008   | +3    | 518                  | 93                     | 7170  | +3     | 518   |      |    |       |
| 44                   | 6697                   | +3    | 518   | 94                   | 94                     | 0852  | +3    | 518                  | 44                     | 7011   | +3    | 518                  | 94                     | 7173  | +3     | 518   |      |    |       |
| 8.9845               | 0.000                  | 6700  | +3    | 9.518                | 8.9895                 | 0.000 | 6855  | +3                   | 9.518                  | 8.9945 | 0.000 | 7014                 | +3                     | 9.518 | 8.9995 | 0.000 | 7176 | +4 | 9.518 |
| 46                   | 6703                   | +3    | 518   | 96                   | 96                     | 0858  | +4    | 518                  | 46                     | 7017   | +3    | 518                  | 96                     | 7180  | +3     | 518   |      |    |       |
| 47                   | 6706                   | +3    | 518   | 97                   | 97                     | 0862  | +3    | 518                  | 47                     | 7020   | +4    | 518                  | 97                     | 7183  | +3     | 518   |      |    |       |
| 48                   | 6709                   | +3    | 518   | 98                   | 98                     | 0865  | +3    | 518                  | 48                     | 7024   | +3    | 518                  | 98                     | 7186  | +3     | 518   |      |    |       |
| 49                   | 6712                   | +3    | 518   | 99                   | 99                     | 0868  | +3    | 518                  | 49                     | 7027   | +3    | 518                  | 99                     | 7189  | +4     | 518   |      |    |       |
| 8.9850               | 0.000                  | 6715  |       | 9.518                | 8.9900                 | 0.000 | 6871  |                      | 9.518                  | 8.9950 | 0.000 | 7030                 |                        | 9.518 | 9.0000 | 0.000 | 7193 |    | 9.518 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g |
|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|
| 9.0000               | 0.000 7193              | +3    | 9.518 | 9.0050               | 0.000 7359              | +4    | 9.518 | 9.0100               | 0.000 7529              | +4    | 9.518 | 9.0150               | 0.000 7704              | +3    | 9.518 |
| 01                   | 7196                    | +3    | 518   | 51                   | 7393                    | +3    | 518   | 01                   | 7533                    | +3    | 518   | 51                   | 7707                    | +4    | 518   |
| 02                   | 7199                    | +4    | 518   | 52                   | 7366                    | +3    | 518   | 02                   | 7536                    | +4    | 518   | 52                   | 7711                    | +3    | 518   |
| 03                   | 7203                    | +3    | 518   | 53                   | 7369                    | +4    | 518   | 03                   | 7540                    | +3    | 518   | 53                   | 7714                    | +4    | 518   |
| 04                   | 7206                    | +3    | 518   | 54                   | 7373                    | +3    | 518   | 04                   | 7543                    | +4    | 518   | 54                   | 7718                    | +3    | 518   |
| 9.0005               | 0.000 7209              | +4    | 9.518 | 9.0055               | 0.000 7376              | +3    | 9.518 | 9.0105               | 0.000 7547              | +3    | 9.518 | 9.0155               | 0.000 7721              | +4    | 9.518 |
| 06                   | 7213                    | +3    | 518   | 56                   | 7379                    | +4    | 518   | 06                   | 7550                    | +4    | 518   | 56                   | 7725                    | +3    | 518   |
| 07                   | 7216                    | +3    | 518   | 57                   | 7383                    | +3    | 518   | 07                   | 7554                    | +3    | 518   | 57                   | 7728                    | +4    | 518   |
| 08                   | 7219                    | +3    | 518   | 58                   | 7386                    | +4    | 518   | 08                   | 7557                    | +4    | 518   | 58                   | 7732                    | +3    | 518   |
| 09                   | 7222                    | +4    | 518   | 59                   | 7390                    | +3    | 518   | 09                   | 7561                    | +3    | 518   | 59                   | 7735                    | +4    | 518   |
| 9.0010               | 0.000 7226              | +3    | 9.518 | 9.0060               | 0.000 7393              | +3    | 9.518 | 9.0110               | 0.000 7564              | +3    | 9.518 | 9.0160               | 0.000 7739              | +4    | 9.518 |
| 11                   | 7229                    | +3    | 518   | 61                   | 7396                    | +4    | 518   | 11                   | 7567                    | +4    | 518   | 61                   | 7743                    | +3    | 518   |
| 12                   | 7232                    | +4    | 518   | 62                   | 7400                    | +3    | 518   | 12                   | 7571                    | +3    | 518   | 62                   | 7746                    | +4    | 518   |
| 13                   | 7236                    | +3    | 518   | 63                   | 7403                    | +4    | 518   | 13                   | 7574                    | +4    | 518   | 63                   | 7750                    | +3    | 518   |
| 14                   | 7239                    | +3    | 518   | 64                   | 7406                    | +4    | 518   | 14                   | 7578                    | +3    | 518   | 64                   | 7753                    | +4    | 518   |
| 9.0015               | 0.000 7242              | +4    | 9.518 | 9.0065               | 0.000 7410              | +3    | 9.518 | 9.0115               | 0.000 7581              | +4    | 9.518 | 9.0165               | 0.000 7757              | +3    | 9.518 |
| 16                   | 7246                    | +3    | 518   | 66                   | 7413                    | +4    | 518   | 16                   | 7585                    | +3    | 518   | 66                   | 7760                    | +4    | 518   |
| 17                   | 7249                    | +3    | 518   | 67                   | 7417                    | +3    | 518   | 17                   | 7588                    | +4    | 518   | 67                   | 7764                    | +3    | 518   |
| 18                   | 7252                    | +4    | 518   | 68                   | 7420                    | +3    | 518   | 18                   | 7592                    | +4    | 518   | 68                   | 7767                    | +4    | 518   |
| 19                   | 7256                    | +3    | 518   | 69                   | 7423                    | +4    | 518   | 19                   | 7595                    | +3    | 518   | 69                   | 7771                    | +3    | 518   |
| 9.0020               | 0.000 7259              | +3    | 9.518 | 9.0070               | 0.000 7427              | +3    | 9.518 | 9.0120               | 0.000 7599              | +3    | 9.518 | 9.0170               | 0.000 7774              | +4    | 9.518 |
| 21                   | 7262                    | +4    | 518   | 71                   | 7430                    | +4    | 518   | 21                   | 7602                    | +4    | 518   | 71                   | 7778                    | +4    | 518   |
| 22                   | 7266                    | +3    | 518   | 72                   | 7434                    | +3    | 518   | 22                   | 7606                    | +3    | 518   | 72                   | 7782                    | +3    | 518   |
| 23                   | 7269                    | +3    | 518   | 73                   | 7437                    | +4    | 518   | 23                   | 7609                    | +4    | 518   | 73                   | 7785                    | +4    | 518   |
| 24                   | 7272                    | +3    | 518   | 74                   | 7440                    | +4    | 518   | 24                   | 7613                    | +3    | 518   | 74                   | 7789                    | +3    | 518   |
| 9.0025               | 0.000 7275              | +4    | 9.518 | 9.0075               | 0.000 7444              | +3    | 9.518 | 9.0125               | 0.000 7616              | +4    | 9.518 | 9.0175               | 0.000 7792              | +4    | 9.518 |
| 26                   | 7279                    | +3    | 518   | 76                   | 7447                    | +4    | 518   | 26                   | 7620                    | +3    | 518   | 76                   | 7796                    | +3    | 518   |
| 27                   | 7282                    | +3    | 518   | 77                   | 7451                    | +4    | 518   | 27                   | 7623                    | +4    | 518   | 77                   | 7799                    | +4    | 518   |
| 28                   | 7285                    | +4    | 518   | 78                   | 7454                    | +3    | 518   | 28                   | 7627                    | +3    | 518   | 78                   | 7803                    | +4    | 518   |
| 29                   | 7289                    | +3    | 518   | 79                   | 7457                    | +4    | 518   | 29                   | 7630                    | +4    | 518   | 79                   | 7807                    | +3    | 518   |
| 9.0030               | 0.000 7292              | +3    | 9.518 | 9.0080               | 0.000 7461              | +3    | 9.518 | 9.0130               | 0.000 7634              | +3    | 9.518 | 9.0180               | 0.000 7810              | +4    | 9.518 |
| 31                   | 7295                    | +4    | 518   | 81                   | 7464                    | +4    | 518   | 31                   | 7637                    | +4    | 518   | 81                   | 7814                    | +3    | 518   |
| 32                   | 7299                    | +3    | 518   | 82                   | 7468                    | +3    | 518   | 32                   | 7641                    | +3    | 518   | 82                   | 7817                    | +4    | 518   |
| 33                   | 7302                    | +4    | 518   | 83                   | 7471                    | +4    | 518   | 33                   | 7644                    | +4    | 518   | 83                   | 7821                    | +3    | 518   |
| 34                   | 7306                    | +3    | 518   | 84                   | 7475                    | +3    | 518   | 34                   | 7648                    | +3    | 518   | 84                   | 7824                    | +4    | 518   |
| 9.0035               | 0.000 7309              | +3    | 9.518 | 9.0085               | 0.000 7478              | +3    | 9.518 | 9.0135               | 0.000 7651              | +4    | 9.518 | 9.0185               | 0.000 7828              | +4    | 9.518 |
| 36                   | 7312                    | +4    | 518   | 86                   | 7481                    | +4    | 518   | 36                   | 7655                    | +3    | 518   | 86                   | 7832                    | +3    | 518   |
| 37                   | 7316                    | +3    | 518   | 87                   | 7485                    | +3    | 518   | 37                   | 7658                    | +4    | 518   | 87                   | 7835                    | +4    | 518   |
| 38                   | 7319                    | +3    | 518   | 88                   | 7488                    | +4    | 518   | 38                   | 7662                    | +3    | 518   | 88                   | 7839                    | +3    | 518   |
| 39                   | 7322                    | +4    | 518   | 89                   | 7492                    | +3    | 518   | 39                   | 7665                    | +4    | 518   | 89                   | 7842                    | +4    | 518   |
| 9.0040               | 0.000 7326              | +3    | 9.518 | 9.0090               | 0.000 7495              | +4    | 9.518 | 9.0140               | 0.000 7669              | +3    | 9.518 | 9.0190               | 0.000 7846              | +4    | 9.518 |
| 41                   | 7329                    | +3    | 518   | 91                   | 7499                    | +3    | 518   | 41                   | 7672                    | +4    | 518   | 91                   | 7850                    | +3    | 518   |
| 42                   | 7332                    | +4    | 518   | 92                   | 7502                    | +3    | 518   | 42                   | 7676                    | +3    | 518   | 92                   | 7853                    | +4    | 518   |
| 43                   | 7336                    | +3    | 518   | 93                   | 7505                    | +4    | 518   | 43                   | 7679                    | +4    | 518   | 93                   | 7857                    | +3    | 518   |
| 44                   | 7339                    | +3    | 518   | 94                   | 7509                    | +3    | 518   | 44                   | 7683                    | +3    | 518   | 94                   | 7860                    | +4    | 518   |
| 9.0045               | 0.000 7342              | +4    | 9.518 | 9.0095               | 0.000 7512              | +4    | 9.518 | 9.0145               | 0.000 7686              | +4    | 9.518 | 9.0195               | 0.000 7864              | +3    | 9.518 |
| 46                   | 7346                    | +3    | 518   | 96                   | 7516                    | +3    | 518   | 46                   | 7690                    | +3    | 518   | 96                   | 7867                    | +4    | 518   |
| 47                   | 7349                    | +3    | 518   | 97                   | 7519                    | +4    | 518   | 47                   | 7693                    | +4    | 518   | 97                   | 7871                    | +4    | 518   |
| 48                   | 7352                    | +4    | 518   | 98                   | 7523                    | +3    | 518   | 48                   | 7697                    | +3    | 518   | 98                   | 7875                    | +3    | 518   |
| 49                   | 7356                    | +3    | 518   | 99                   | 7526                    | +3    | 518   | 49                   | 7700                    | +4    | 518   | 99                   | 7878                    | +4    | 518   |
| 9.0050               | 0.000 7359              |       | 9.518 | 9.0100               | 0.000 7529              |       | 9.518 | 9.0150               | 0.000 7704              |       | 9.518 | 9.0200               | 0.000 7882              |       | 9.518 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g |
|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|
| 9°0200               | 0°000 7882              |       | 9°518 | 9°0250               | 0°000 8064              |       | 9°518 | 9°0300               | 0°000 8251              |       | 9°517 | 9°0350               | 0°000 8441              |       | 9°517 |
| 01                   | 7886                    | +4    | 518   | 51                   | 8068                    | +4    | 518   | 01                   | 8254                    | +3    | 517   | 51                   | 8445                    | +4    | 517   |
| 02                   | 7889                    | +3    | 518   | 52                   | 8072                    | +4    | 518   | 02                   | 8258                    | +4    | 517   | 52                   | 8449                    | +4    | 517   |
| 03                   | 7893                    | +4    | 518   | 53                   | 8075                    | +3    | 518   | 03                   | 8262                    | +4    | 517   | 53                   | 8453                    | +4    | 517   |
| 04                   | 7896                    | +3    | 518   | 54                   | 8079                    | +4    | 518   | 04                   | 8266                    | +4    | 517   | 54                   | 8457                    | +4    | 517   |
|                      |                         | +4    |       |                      |                         | +4    |       |                      |                         | +4    |       |                      |                         | +4    |       |
| 9°0205               | 0°000 7900              |       | 9°518 | 9°0255               | 0°000 8083              |       | 9°518 | 9°0305               | 0°000 8270              |       | 9°517 | 9°0355               | 0°000 8461              |       | 9°517 |
| 06                   | 7904                    | +4    | 518   | 56                   | 8080                    | +3    | 518   | 06                   | 8273                    | +3    | 517   | 56                   | 8465                    | +4    | 517   |
| 07                   | 7907                    | +3    | 518   | 57                   | 8090                    | +4    | 518   | 07                   | 8277                    | +4    | 517   | 57                   | 8469                    | +4    | 517   |
| 08                   | 7911                    | +4    | 518   | 58                   | 8094                    | +4    | 518   | 08                   | 8281                    | +4    | 517   | 58                   | 8472                    | +3    | 517   |
| 09                   | 7914                    | +3    | 518   | 59                   | 8097                    | +3    | 518   | 09                   | 8285                    | +4    | 517   | 59                   | 8476                    | +4    | 517   |
|                      |                         | +4    |       |                      |                         | +4    |       |                      |                         | +3    |       |                      |                         | +4    |       |
| 9°0210               | 0°000 7918              |       | 9°518 | 9°0260               | 0°000 8101              |       | 9°518 | 9°0310               | 0°000 8288              |       | 9°517 | 9°0360               | 0°000 8480              |       | 9°517 |
| 11                   | 7922                    | +4    | 518   | 01                   | 8105                    | +4    | 518   | 11                   | 8292                    | +4    | 517   | 61                   | 8484                    | +4    | 517   |
| 12                   | 7925                    | +3    | 518   | 02                   | 8109                    | +4    | 518   | 12                   | 8296                    | +4    | 517   | 62                   | 8488                    | +4    | 517   |
| 13                   | 7929                    | +4    | 518   | 03                   | 8112                    | +3    | 518   | 13                   | 8300                    | +4    | 517   | 63                   | 8492                    | +4    | 517   |
| 14                   | 7933                    | +4    | 518   | 04                   | 8116                    | +4    | 518   | 14                   | 8304                    | +4    | 517   | 64                   | 8496                    | +4    | 517   |
|                      |                         | +3    |       |                      |                         | +4    |       |                      |                         | +3    |       |                      |                         | +4    |       |
| 9°0215               | 0°000 7936              |       | 9°518 | 9°0265               | 0°000 8120              |       | 9°518 | 9°0315               | 0°000 8307              |       | 9°517 | 9°0365               | 0°000 8500              |       | 9°517 |
| 16                   | 7940                    | +4    | 518   | 66                   | 8123                    | +3    | 518   | 16                   | 8311                    | +4    | 517   | 66                   | 8503                    | +3    | 517   |
| 17                   | 7943                    | +3    | 518   | 67                   | 8127                    | +4    | 518   | 17                   | 8315                    | +4    | 517   | 67                   | 8507                    | +4    | 517   |
| 18                   | 7947                    | +4    | 518   | 68                   | 8131                    | +4    | 518   | 18                   | 8319                    | +4    | 517   | 68                   | 8511                    | +4    | 517   |
| 19                   | 7951                    | +4    | 518   | 69                   | 8135                    | +4    | 518   | 19                   | 8323                    | +4    | 517   | 69                   | 8515                    | +4    | 517   |
|                      |                         | +3    |       |                      |                         | +3    |       |                      |                         | +3    |       |                      |                         | +4    |       |
| 9°0220               | 0°000 7954              |       | 9°518 | 9°0270               | 0°000 8138              |       | 9°517 | 9°0320               | 0°000 8326              |       | 9°517 | 9°0370               | 0°000 8519              |       | 9°517 |
| 21                   | 7958                    | +4    | 518   | 71                   | 8142                    | +4    | 517   | 21                   | 8330                    | +4    | 517   | 71                   | 8523                    | +4    | 517   |
| 22                   | 7962                    | +4    | 518   | 72                   | 8146                    | +4    | 517   | 22                   | 8334                    | +4    | 517   | 72                   | 8527                    | +4    | 517   |
| 23                   | 7965                    | +3    | 518   | 73                   | 8149                    | +3    | 517   | 23                   | 8338                    | +4    | 517   | 73                   | 8531                    | +4    | 517   |
| 24                   | 7969                    | +4    | 518   | 74                   | 8153                    | +4    | 517   | 24                   | 8342                    | +4    | 517   | 74                   | 8535                    | +4    | 517   |
|                      |                         | +4    |       |                      |                         | +4    |       |                      |                         | +4    |       |                      |                         | +3    |       |
| 9°0225               | 0°000 7973              |       | 9°518 | 9°0275               | 0°000 8157              |       | 9°517 | 9°0325               | 0°000 8346              |       | 9°517 | 9°0375               | 0°000 8538              |       | 9°517 |
| 26                   | 7970                    | +3    | 518   | 76                   | 8161                    | +4    | 517   | 26                   | 8349                    | +3    | 517   | 76                   | 8542                    | +4    | 517   |
| 27                   | 7980                    | +4    | 518   | 77                   | 8164                    | +3    | 517   | 27                   | 8353                    | +4    | 517   | 77                   | 8546                    | +4    | 517   |
| 28                   | 7983                    | +3    | 518   | 78                   | 8168                    | +4    | 517   | 28                   | 8357                    | +4    | 517   | 78                   | 8550                    | +4    | 517   |
| 29                   | 7987                    | +4    | 518   | 79                   | 8172                    | +4    | 517   | 29                   | 8361                    | +4    | 517   | 79                   | 8554                    | +4    | 517   |
|                      |                         | +4    |       |                      |                         | +4    |       |                      |                         | +4    |       |                      |                         | +4    |       |
| 9°0230               | 0°000 7991              |       | 9°518 | 9°0280               | 0°000 8176              |       | 9°517 | 9°0330               | 0°000 8365              |       | 9°517 | 9°0380               | 0°000 8558              |       | 9°517 |
| 31                   | 7994                    | +3    | 518   | 81                   | 8179                    | +3    | 517   | 31                   | 8368                    | +3    | 517   | 81                   | 8562                    | +4    | 517   |
| 32                   | 7998                    | +4    | 518   | 82                   | 8183                    | +4    | 517   | 32                   | 8372                    | +4    | 517   | 82                   | 8566                    | +4    | 517   |
| 33                   | 8002                    | +4    | 518   | 83                   | 8187                    | +4    | 517   | 33                   | 8376                    | +4    | 517   | 83                   | 8570                    | +4    | 517   |
| 34                   | 8005                    | +3    | 518   | 84                   | 8191                    | +4    | 517   | 34                   | 8380                    | +4    | 517   | 84                   | 8574                    | +4    | 517   |
|                      |                         | +4    |       |                      |                         | +3    |       |                      |                         | +4    |       |                      |                         | +4    |       |
| 9°0235               | 0°000 8009              |       | 9°518 | 9°0285               | 0°000 8194              |       | 9°517 | 9°0335               | 0°000 8384              |       | 9°517 | 9°0385               | 0°000 8578              |       | 9°517 |
| 36                   | 8013                    | +4    | 518   | 86                   | 8198                    | +4    | 517   | 36                   | 8388                    | +4    | 517   | 86                   | 8582                    | +4    | 517   |
| 37                   | 8016                    | +3    | 518   | 87                   | 8202                    | +4    | 517   | 37                   | 8391                    | +3    | 517   | 87                   | 8585                    | +3    | 517   |
| 38                   | 8020                    | +4    | 518   | 88                   | 8206                    | +4    | 517   | 38                   | 8395                    | +4    | 517   | 88                   | 8589                    | +4    | 517   |
| 39                   | 8024                    | +4    | 518   | 89                   | 8209                    | +3    | 517   | 39                   | 8399                    | +4    | 517   | 89                   | 8593                    | +4    | 517   |
|                      |                         | +3    |       |                      |                         | +4    |       |                      |                         | +4    |       |                      |                         | +4    |       |
| 9°0240               | 0°000 8027              |       | 9°518 | 9°0290               | 0°000 8213              |       | 9°517 | 9°0340               | 0°000 8403              |       | 9°517 | 9°0390               | 0°000 8597              |       | 9°517 |
| 41                   | 8031                    | +4    | 518   | 91                   | 8217                    | +4    | 517   | 41                   | 8407                    | +4    | 517   | 91                   | 8601                    | +4    | 517   |
| 42                   | 8035                    | +4    | 518   | 92                   | 8221                    | +4    | 517   | 42                   | 8411                    | +4    | 517   | 92                   | 8605                    | +4    | 517   |
| 43                   | 8038                    | +3    | 518   | 93                   | 8224                    | +3    | 517   | 43                   | 8414                    | +3    | 517   | 93                   | 8609                    | +4    | 517   |
| 44                   | 8042                    | +4    | 518   | 94                   | 8228                    | +4    | 517   | 44                   | 8418                    | +4    | 517   | 94                   | 8613                    | +4    | 517   |
|                      |                         | +4    |       |                      |                         | +4    |       |                      |                         | +4    |       |                      |                         | +4    |       |
| 9°0245               | 0°000 8046              |       | 9°518 | 9°0295               | 0°000 8232              |       | 9°517 | 9°0345               | 0°000 8422              |       | 9°517 | 9°0395               | 0°000 8617              |       | 9°517 |
| 46                   | 8049                    | +3    | 518   | 96                   | 8236                    | +4    | 517   | 46                   | 8426                    | +4    | 517   | 96                   | 8621                    | +4    | 517   |
| 47                   | 8053                    | +4    | 518   | 97                   | 8239                    | +3    | 517   | 47                   | 8430                    | +4    | 517   | 97                   | 8625                    | +4    | 517   |
| 48                   | 8057                    | +4    | 518   | 98                   | 8243                    | +4    | 517   | 48                   | 8434                    | +4    | 517   | 98                   | 8629                    | +4    | 517   |
| 49                   | 8061                    | +4    | 518   | 99                   | 8247                    | +4    | 517   | 49                   | 8438                    | +4    | 517   | 99                   | 8633                    | +4    | 517   |
|                      |                         | +3    |       |                      |                         | +4    |       |                      |                         | +3    |       |                      |                         | +4    |       |
| 9°0250               | 0°000 8064              |       | 9°518 | 9°0300               | 0°000 8251              |       | 9°517 | 9°0350               | 0°000 8441              |       | 9°517 | 9°0400               | 0°000 8637              |       | 9°517 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g |
|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|
| 9°0400               | 0°000 8637              | +4    | 9°517 | 9°0450               | 0°000 8836              | +4    | 9°517 | 9°0500               | 0°000 9040              | +5    | 9°517 | 9°0550               | 0°000 9249              | +5    | 9°517 |
| 01                   | 8641                    | +3    | 517   | 51                   | 8840                    | +4    | 517   | 01                   | 9045                    | +4    | 517   | 51                   | 9254                    | +4    | 517   |
| 02                   | 8644                    | +4    | 517   | 52                   | 8844                    | +4    | 517   | 02                   | 9049                    | +4    | 517   | 52                   | 9258                    | +4    | 517   |
| 03                   | 8648                    | +4    | 517   | 53                   | 8848                    | +4    | 517   | 03                   | 9053                    | +4    | 517   | 53                   | 9262                    | +4    | 517   |
| 04                   | 8652                    | +4    | 517   | 54                   | 8852                    | +4    | 517   | 04                   | 9057                    | +4    | 517   | 54                   | 9266                    | +4    | 517   |
| 9°0405               | 0°000 8650              | +4    | 9°517 | 9°0455               | 0°000 8850              | +4    | 9°517 | 9°0505               | 0°000 9061              | +4    | 9°517 | 9°0555               | 0°000 9270              | +5    | 9°517 |
| 06                   | 8660                    | +4    | 517   | 56                   | 8860                    | +5    | 517   | 06                   | 9065                    | +4    | 517   | 56                   | 9275                    | +4    | 517   |
| 07                   | 8664                    | +4    | 517   | 57                   | 8865                    | +4    | 517   | 07                   | 9069                    | +5    | 517   | 57                   | 9279                    | +4    | 517   |
| 08                   | 8668                    | +4    | 517   | 58                   | 8869                    | +4    | 517   | 08                   | 9074                    | +4    | 517   | 58                   | 9283                    | +4    | 517   |
| 09                   | 8672                    | +4    | 517   | 59                   | 8873                    | +4    | 517   | 09                   | 9078                    | +4    | 517   | 59                   | 9287                    | +5    | 517   |
| 9°0410               | 0°000 8676              | +4    | 9°517 | 9°0460               | 0°000 8877              | +4    | 9°517 | 9°0510               | 0°000 9080              | +4    | 9°517 | 9°0560               | 0°000 9292              | +4    | 9°517 |
| 11                   | 8680                    | +4    | 517   | 61                   | 8881                    | +4    | 517   | 11                   | 9086                    | +4    | 517   | 61                   | 9296                    | +4    | 517   |
| 12                   | 8684                    | +4    | 517   | 62                   | 8885                    | +4    | 517   | 12                   | 9090                    | +4    | 517   | 62                   | 9300                    | +4    | 517   |
| 13                   | 8688                    | +4    | 517   | 63                   | 8889                    | +4    | 517   | 13                   | 9094                    | +4    | 517   | 63                   | 9304                    | +5    | 517   |
| 14                   | 8692                    | +4    | 517   | 64                   | 8893                    | +4    | 517   | 14                   | 9098                    | +5    | 517   | 64                   | 9309                    | +4    | 517   |
| 9°0415               | 0°000 8696              | +4    | 9°517 | 9°0465               | 0°000 8897              | +4    | 9°517 | 9°0515               | 0°000 9103              | +4    | 9°517 | 9°0565               | 0°000 9313              | +4    | 9°517 |
| 16                   | 8700                    | +4    | 517   | 66                   | 8901                    | +4    | 517   | 16                   | 9107                    | +4    | 517   | 66                   | 9317                    | +4    | 517   |
| 17                   | 8704                    | +4    | 517   | 67                   | 8905                    | +4    | 517   | 17                   | 9111                    | +4    | 517   | 67                   | 9321                    | +5    | 517   |
| 18                   | 8708                    | +4    | 517   | 68                   | 8909                    | +4    | 517   | 18                   | 9115                    | +4    | 517   | 68                   | 9326                    | +4    | 517   |
| 19                   | 8712                    | +4    | 517   | 69                   | 8913                    | +4    | 517   | 19                   | 9119                    | +4    | 517   | 69                   | 9330                    | +4    | 517   |
| 9°0420               | 0°000 8716              | +4    | 9°517 | 9°0470               | 0°000 8917              | +4    | 9°517 | 9°0520               | 0°000 9123              | +5    | 9°517 | 9°0570               | 0°000 9334              | +4    | 9°517 |
| 21                   | 8720                    | +4    | 517   | 71                   | 8921                    | +4    | 517   | 21                   | 9128                    | +4    | 517   | 71                   | 9338                    | +5    | 517   |
| 22                   | 8724                    | +4    | 517   | 72                   | 8925                    | +5    | 517   | 22                   | 9132                    | +4    | 517   | 72                   | 9343                    | +4    | 517   |
| 23                   | 8728                    | +4    | 517   | 73                   | 8930                    | +4    | 517   | 23                   | 9136                    | +4    | 517   | 73                   | 9347                    | +4    | 517   |
| 24                   | 8732                    | +4    | 517   | 74                   | 8934                    | +4    | 517   | 24                   | 9140                    | +4    | 517   | 74                   | 9351                    | +5    | 517   |
| 9°0425               | 0°000 8736              | +4    | 9°517 | 9°0475               | 0°000 8938              | +4    | 9°517 | 9°0525               | 0°000 9144              | +4    | 9°517 | 9°0575               | 0°000 9356              | +4    | 9°517 |
| 26                   | 8740                    | +4    | 517   | 76                   | 8942                    | +4    | 517   | 26                   | 9148                    | +5    | 517   | 76                   | 9360                    | +4    | 517   |
| 27                   | 8744                    | +4    | 517   | 77                   | 8946                    | +4    | 517   | 27                   | 9153                    | +4    | 517   | 77                   | 9364                    | +4    | 517   |
| 28                   | 8748                    | +4    | 517   | 78                   | 8950                    | +4    | 517   | 28                   | 9157                    | +4    | 517   | 78                   | 9368                    | +5    | 517   |
| 29                   | 8752                    | +4    | 517   | 79                   | 8954                    | +4    | 517   | 29                   | 9161                    | +4    | 517   | 79                   | 9373                    | +4    | 517   |
| 9°0430               | 0°000 8756              | +4    | 9°517 | 9°0480               | 0°000 8958              | +4    | 9°517 | 9°0530               | 0°000 9165              | +4    | 9°517 | 9°0580               | 0°000 9377              | +4    | 9°517 |
| 31                   | 8760                    | +4    | 517   | 81                   | 8962                    | +4    | 517   | 31                   | 9169                    | +5    | 517   | 81                   | 9381                    | +4    | 517   |
| 32                   | 8764                    | +4    | 517   | 82                   | 8966                    | +4    | 517   | 32                   | 9174                    | +4    | 517   | 82                   | 9385                    | +5    | 517   |
| 33                   | 8768                    | +4    | 517   | 83                   | 8970                    | +5    | 517   | 33                   | 9178                    | +4    | 517   | 83                   | 9390                    | +4    | 517   |
| 34                   | 8772                    | +4    | 517   | 84                   | 8975                    | +4    | 517   | 34                   | 9182                    | +4    | 517   | 84                   | 9394                    | +4    | 517   |
| 9°0435               | 0°000 8776              | +4    | 9°517 | 9°0485               | 0°000 8979              | +4    | 9°517 | 9°0535               | 0°000 9186              | +4    | 9°517 | 9°0585               | 0°000 9398              | +5    | 9°517 |
| 36                   | 8780                    | +4    | 517   | 86                   | 8983                    | +4    | 517   | 36                   | 9190                    | +5    | 517   | 86                   | 9403                    | +4    | 517   |
| 37                   | 8784                    | +4    | 517   | 87                   | 8987                    | +4    | 517   | 37                   | 9195                    | +4    | 517   | 87                   | 9407                    | +4    | 517   |
| 38                   | 8788                    | +4    | 517   | 88                   | 8991                    | +4    | 517   | 38                   | 9199                    | +4    | 517   | 88                   | 9411                    | +5    | 517   |
| 39                   | 8792                    | +4    | 517   | 89                   | 8995                    | +4    | 517   | 39                   | 9203                    | +4    | 517   | 89                   | 9416                    | +4    | 517   |
| 9°0440               | 0°000 8796              | +4    | 9°517 | 9°0490               | 0°000 8999              | +4    | 9°517 | 9°0540               | 0°000 9207              | +4    | 9°517 | 9°0590               | 0°000 9420              | +4    | 9°517 |
| 41                   | 8800                    | +4    | 517   | 91                   | 9003                    | +4    | 517   | 41                   | 9211                    | +5    | 517   | 91                   | 9424                    | +4    | 517   |
| 42                   | 8804                    | +4    | 517   | 92                   | 9007                    | +5    | 517   | 42                   | 9216                    | +4    | 517   | 92                   | 9428                    | +5    | 517   |
| 43                   | 8808                    | +4    | 517   | 93                   | 9012                    | +4    | 517   | 43                   | 9220                    | +4    | 517   | 93                   | 9433                    | +4    | 517   |
| 44                   | 8812                    | +4    | 517   | 94                   | 9016                    | +4    | 517   | 44                   | 9224                    | +4    | 517   | 94                   | 9437                    | +4    | 517   |
| 9°0445               | 0°000 8816              | +4    | 9°517 | 9°0495               | 0°000 9020              | +4    | 9°517 | 9°0545               | 0°000 9228              | +4    | 9°517 | 9°0595               | 0°000 9441              | +5    | 9°517 |
| 46                   | 8820                    | +4    | 517   | 96                   | 9024                    | +4    | 517   | 46                   | 9232                    | +5    | 517   | 96                   | 9446                    | +4    | 517   |
| 47                   | 8824                    | +4    | 517   | 97                   | 9028                    | +4    | 517   | 47                   | 9237                    | +4    | 517   | 97                   | 9450                    | +4    | 517   |
| 48                   | 8828                    | +4    | 517   | 98                   | 9032                    | +4    | 517   | 48                   | 9241                    | +4    | 517   | 98                   | 9454                    | +5    | 517   |
| 49                   | 8832                    | +4    | 517   | 99                   | 9036                    | +4    | 517   | 49                   | 9245                    | +4    | 517   | 99                   | 9459                    | +4    | 517   |
| 9°0450               | 0°000 8836              |       | 9°517 | 9°0500               | 0°000 9040              |       | 9°517 | 9°0550               | 0°000 9249              |       | 9°517 | 9°0600               | 0°000 9463              |       | 9°517 |

| log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|
| 9°0600              | 0°000 9463             | +4    | 9°517 | 9°0650              | 0°000 9682             | +4    | 9°516 | 9°0700              | 0°000 9905             | +5    | 9°516 | 9°0750              | 0°001 0134             | +4    | 9°516 |
| 01                  | 9467                   | +5    | 517   | 51                  | 9686                   | +4    | 516   | 01                  | 9910                   | +5    | 516   | 51                  | 0138                   | +5    | 516   |
| 02                  | 9472                   | +4    | 517   | 52                  | 9690                   | +5    | 516   | 02                  | 9914                   | +5    | 516   | 52                  | 0143                   | +5    | 516   |
| 03                  | 9476                   | +4    | 517   | 53                  | 9695                   | +4    | 516   | 03                  | 9919                   | +4    | 516   | 53                  | 0148                   | +4    | 516   |
| 04                  | 9480                   | +5    | 517   | 54                  | 9699                   | +5    | 516   | 04                  | 9923                   | +5    | 516   | 54                  | 0152                   | +5    | 516   |
| 9°0605              | 0°000 9485             | +4    | 9°517 | 9°0655              | 0°000 9704             | +4    | 9°516 | 9°0705              | 0°000 9928             | +4    | 9°516 | 9°0755              | 0°001 0157             | +5    | 9°516 |
| 06                  | 9489                   | +4    | 517   | 56                  | 9708                   | +5    | 516   | 06                  | 9932                   | +5    | 516   | 56                  | 0162                   | +4    | 516   |
| 07                  | 9493                   | +5    | 517   | 57                  | 9713                   | +4    | 516   | 07                  | 9937                   | +4    | 516   | 57                  | 0166                   | +5    | 516   |
| 08                  | 9498                   | +4    | 517   | 58                  | 9717                   | +5    | 516   | 08                  | 9941                   | +5    | 516   | 58                  | 0171                   | +4    | 516   |
| 09                  | 9502                   | +4    | 517   | 59                  | 9721                   | +5    | 516   | 09                  | 9946                   | +4    | 516   | 59                  | 0175                   | +5    | 516   |
| 9°0610              | 0°000 9506             | +5    | 9°517 | 9°0660              | 0°000 9726             | +4    | 9°516 | 9°0710              | 0°000 9950             | +5    | 9°516 | 9°0760              | 0°001 0180             | +5    | 9°516 |
| 11                  | 9511                   | +4    | 517   | 61                  | 9730                   | +5    | 516   | 11                  | 9955                   | +4    | 516   | 61                  | 0185                   | +4    | 516   |
| 12                  | 9515                   | +4    | 517   | 62                  | 9735                   | +5    | 516   | 12                  | 9959                   | +4    | 516   | 62                  | 0189                   | +5    | 516   |
| 13                  | 9519                   | +5    | 517   | 63                  | 9739                   | +5    | 516   | 13                  | 9964                   | +5    | 516   | 63                  | 0194                   | +5    | 516   |
| 14                  | 9524                   | +4    | 517   | 64                  | 9744                   | +4    | 516   | 14                  | 9969                   | +4    | 516   | 64                  | 0199                   | +4    | 516   |
| 9°0615              | 0°000 9528             | +4    | 9°517 | 9°0665              | 0°000 9748             | +5    | 9°516 | 9°0715              | 0°000 9978             | +5    | 9°516 | 9°0765              | 0°001 0203             | +5    | 9°516 |
| 16                  | 9532                   | +5    | 517   | 66                  | 9753                   | +4    | 516   | 16                  | 9978                   | +4    | 516   | 66                  | 0208                   | +5    | 516   |
| 17                  | 9537                   | +4    | 517   | 67                  | 9757                   | +5    | 516   | 17                  | 9982                   | +5    | 516   | 67                  | 0213                   | +4    | 516   |
| 18                  | 9541                   | +4    | 517   | 68                  | 9761                   | +5    | 516   | 18                  | 9987                   | +4    | 516   | 68                  | 0217                   | +5    | 516   |
| 19                  | 9545                   | +5    | 517   | 69                  | 9766                   | +4    | 516   | 19                  | 9991                   | +5    | 516   | 69                  | 0222                   | +5    | 516   |
| 9°0620              | 0°000 9550             | +4    | 9°517 | 9°0670              | 0°000 9770             | +5    | 9°516 | 9°0720              | 0°000 9996             | +5    | 9°516 | 9°0770              | 0°001 0227             | +4    | 9°516 |
| 21                  | 9554                   | +5    | 517   | 71                  | 9775                   | +4    | 516   | 21                  | 0001                   | +4    | 516   | 71                  | 0231                   | +5    | 516   |
| 22                  | 9559                   | +4    | 517   | 72                  | 9779                   | +5    | 516   | 22                  | 0005                   | +5    | 516   | 72                  | 0236                   | +5    | 516   |
| 23                  | 9563                   | +4    | 517   | 73                  | 9784                   | +4    | 516   | 23                  | 0010                   | +4    | 516   | 73                  | 0241                   | +4    | 516   |
| 24                  | 9567                   | +5    | 517   | 74                  | 9788                   | +5    | 516   | 24                  | 0014                   | +5    | 516   | 74                  | 0245                   | +5    | 516   |
| 9°0625              | 0°000 9572             | +4    | 9°517 | 9°0675              | 0°000 9793             | +4    | 9°516 | 9°0725              | 0°001 0019             | +4    | 9°516 | 9°0775              | 0°001 0250             | +5    | 9°516 |
| 26                  | 9576                   | +4    | 517   | 76                  | 9797                   | +5    | 516   | 26                  | 0023                   | +4    | 516   | 76                  | 0255                   | +4    | 516   |
| 27                  | 9580                   | +4    | 517   | 77                  | 9802                   | +5    | 516   | 27                  | 0028                   | +5    | 516   | 77                  | 0259                   | +5    | 516   |
| 28                  | 9585                   | +5    | 517   | 78                  | 9806                   | +4    | 516   | 28                  | 0033                   | +4    | 516   | 78                  | 0263                   | +5    | 516   |
| 29                  | 9589                   | +5    | 517   | 79                  | 9811                   | +4    | 516   | 29                  | 0037                   | +5    | 516   | 79                  | 0269                   | +4    | 516   |
| 9°0630              | 0°000 9594             | +4    | 9°517 | 9°0680              | 0°000 9815             | +5    | 9°516 | 9°0730              | 0°001 0042             | +4    | 9°516 | 9°0780              | 0°001 0273             | +5    | 9°516 |
| 31                  | 9598                   | +4    | 517   | 81                  | 9820                   | +5    | 516   | 31                  | 0046                   | +4    | 516   | 81                  | 0278                   | +5    | 516   |
| 32                  | 9602                   | +5    | 517   | 82                  | 9824                   | +4    | 516   | 32                  | 0051                   | +5    | 516   | 82                  | 0283                   | +5    | 516   |
| 33                  | 9607                   | +4    | 517   | 83                  | 9829                   | +5    | 516   | 33                  | 0055                   | +4    | 516   | 83                  | 0288                   | +4    | 516   |
| 34                  | 9611                   | +4    | 517   | 84                  | 9833                   | +4    | 516   | 34                  | 0060                   | +5    | 516   | 84                  | 0292                   | +5    | 516   |
| 9°0635              | 0°000 9615             | +5    | 9°517 | 9°0685              | 0°000 9837             | +4    | 9°516 | 9°0735              | 0°001 0065             | +4    | 9°516 | 9°0785              | 0°001 0297             | +5    | 9°516 |
| 36                  | 9620                   | +4    | 517   | 86                  | 9842                   | +5    | 516   | 36                  | 0069                   | +5    | 516   | 86                  | 0302                   | +4    | 516   |
| 37                  | 9624                   | +5    | 517   | 87                  | 9846                   | +4    | 516   | 37                  | 0074                   | +4    | 516   | 87                  | 0306                   | +5    | 516   |
| 38                  | 9629                   | +4    | 517   | 88                  | 9851                   | +5    | 516   | 38                  | 0078                   | +5    | 516   | 88                  | 0311                   | +5    | 516   |
| 39                  | 9633                   | +4    | 517   | 89                  | 9855                   | +5    | 516   | 39                  | 0083                   | +5    | 516   | 89                  | 0316                   | +4    | 516   |
| 9°0640              | 0°000 9637             | +5    | 9°517 | 9°0690              | 0°000 9860             | +4    | 9°516 | 9°0740              | 0°001 0088             | +4    | 9°516 | 9°0790              | 0°001 0320             | +5    | 9°516 |
| 41                  | 9642                   | +4    | 517   | 91                  | 9864                   | +5    | 516   | 41                  | 0092                   | +5    | 516   | 91                  | 0325                   | +5    | 516   |
| 42                  | 9646                   | +5    | 516   | 92                  | 9869                   | +4    | 516   | 42                  | 0097                   | +4    | 516   | 92                  | 0330                   | +5    | 516   |
| 43                  | 9651                   | +4    | 516   | 93                  | 9873                   | +5    | 516   | 43                  | 0101                   | +5    | 516   | 93                  | 0335                   | +4    | 516   |
| 44                  | 9655                   | +4    | 516   | 94                  | 9878                   | +5    | 516   | 44                  | 0106                   | +5    | 516   | 94                  | 0339                   | +5    | 516   |
| 9°0645              | 0°000 9659             | +5    | 9°516 | 9°0695              | 0°000 9883             | +4    | 9°516 | 9°0745              | 0°001 0111             | +4    | 9°516 | 9°0795              | 0°001 0344             | +5    | 9°516 |
| 46                  | 9664                   | +4    | 516   | 96                  | 9887                   | +5    | 516   | 46                  | 0115                   | +4    | 516   | 96                  | 0349                   | +4    | 516   |
| 47                  | 9668                   | +5    | 516   | 97                  | 9892                   | +4    | 516   | 47                  | 0120                   | +5    | 516   | 97                  | 0353                   | +5    | 516   |
| 48                  | 9673                   | +4    | 516   | 98                  | 9896                   | +5    | 516   | 48                  | 0125                   | +4    | 516   | 98                  | 0358                   | +5    | 516   |
| 49                  | 9677                   | +5    | 516   | 99                  | 9901                   | +4    | 516   | 49                  | 0129                   | +5    | 516   | 99                  | 0363                   | +5    | 516   |
| 9°0650              | 0°000 9682             |       | 9°516 | 9°0700              | 0°000 9905             |       | 9°516 | 9°0750              | 0°001 0134             |       | 9°516 | 9°0800              | 0°001 0368             |       | 9°516 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|
| 9°0800               | 0°001 0368             | +4    | 9°516 | 9°0850               | 0°001 0607             | +5    | 9°516 | 9°0900               | 0°001 0852             | +5    | 9°516 | 9°0950               | 0°001 1102             | +5    | 9°516 |
| 01                   | 0372                   | +5    | 516   | 51                   | 0612                   | +5    | 516   | 01                   | 0857                   | +5    | 516   | 51                   | 1107                   | +5    | 516   |
| 02                   | 0377                   | +5    | 516   | 52                   | 0617                   | +4    | 516   | 02                   | 0862                   | +5    | 516   | 52                   | 1112                   | +5    | 516   |
| 03                   | 0382                   | +5    | 516   | 53                   | 0621                   | +5    | 516   | 03                   | 0867                   | +4    | 516   | 53                   | 1117                   | +5    | 516   |
| 04                   | 0387                   | +4    | 516   | 54                   | 0626                   | +5    | 516   | 04                   | 0871                   | +5    | 516   | 54                   | 1122                   | +5    | 516   |
| 9°0805               | 0°001 0391             | +5    | 9°516 | 9°0855               | 0°001 0631             | +5    | 9°516 | 9°0905               | 0°001 0876             | +5    | 9°516 | 9°0955               | 0°001 1127             | +5    | 9°516 |
| 06                   | 0396                   | +5    | 516   | 56                   | 0636                   | +5    | 516   | 06                   | 0881                   | +5    | 516   | 56                   | 1132                   | +5    | 516   |
| 07                   | 0401                   | +5    | 516   | 57                   | 0641                   | +5    | 516   | 07                   | 0886                   | +5    | 516   | 57                   | 1137                   | +6    | 516   |
| 08                   | 0406                   | +4    | 516   | 58                   | 0646                   | +5    | 516   | 08                   | 0891                   | +5    | 516   | 58                   | 1143                   | +5    | 516   |
| 09                   | 0410                   | +5    | 516   | 59                   | 0651                   | +4    | 516   | 09                   | 0896                   | +5    | 516   | 59                   | 1148                   | +5    | 516   |
| 9°0810               | 0°001 0415             | +5    | 9°516 | 9°0860               | 0°001 0655             | +5    | 9°516 | 9°0910               | 0°001 0901             | +5    | 9°516 | 9°0960               | 0°001 1153             | +5    | 9°515 |
| 11                   | 0420                   | +5    | 516   | 61                   | 0660                   | +5    | 516   | 11                   | 0906                   | +5    | 516   | 61                   | 1158                   | +5    | 515   |
| 12                   | 0425                   | +4    | 516   | 62                   | 0665                   | +5    | 516   | 12                   | 0911                   | +5    | 516   | 62                   | 1163                   | +5    | 515   |
| 13                   | 0429                   | +5    | 516   | 63                   | 0670                   | +5    | 516   | 13                   | 0916                   | +5    | 516   | 63                   | 1168                   | +5    | 515   |
| 14                   | 0434                   | +5    | 516   | 64                   | 0675                   | +5    | 516   | 14                   | 0921                   | +5    | 516   | 64                   | 1173                   | +5    | 515   |
| 9°0815               | 0°001 0439             | +5    | 9°516 | 9°0865               | 0°001 0680             | +5    | 9°516 | 9°0915               | 0°001 0926             | +5    | 9°516 | 9°0965               | 0°001 1178             | +5    | 9°515 |
| 16                   | 0444                   | +4    | 516   | 66                   | 0685                   | +5    | 516   | 16                   | 0931                   | +5    | 516   | 66                   | 1183                   | +5    | 515   |
| 17                   | 0448                   | +5    | 516   | 67                   | 0690                   | +4    | 516   | 17                   | 0936                   | +5    | 516   | 67                   | 1188                   | +5    | 515   |
| 18                   | 0453                   | +5    | 516   | 68                   | 0694                   | +5    | 516   | 18                   | 0941                   | +5    | 516   | 68                   | 1193                   | +6    | 515   |
| 19                   | 0458                   | +5    | 516   | 69                   | 0699                   | +5    | 516   | 19                   | 0946                   | +5    | 516   | 69                   | 1199                   | +5    | 515   |
| 9°0820               | 0°001 0463             | +5    | 9°516 | 9°0870               | 0°001 0704             | +5    | 9°516 | 9°0920               | 0°001 0951             | +5    | 9°516 | 9°0970               | 0°001 1204             | +5    | 9°515 |
| 21                   | 0468                   | +4    | 516   | 71                   | 0709                   | +5    | 516   | 21                   | 0956                   | +5    | 516   | 71                   | 1209                   | +5    | 515   |
| 22                   | 0472                   | +5    | 516   | 72                   | 0714                   | +5    | 516   | 22                   | 0961                   | +5    | 516   | 72                   | 1214                   | +5    | 515   |
| 23                   | 0477                   | +5    | 516   | 73                   | 0719                   | +5    | 516   | 23                   | 0966                   | +5    | 516   | 73                   | 1219                   | +5    | 515   |
| 24                   | 0482                   | +5    | 516   | 74                   | 0724                   | +5    | 516   | 24                   | 0971                   | +5    | 516   | 74                   | 1224                   | +5    | 515   |
| 9°0825               | 0°001 0487             | +4    | 9°516 | 9°0875               | 0°001 0729             | +5    | 9°516 | 9°0925               | 0°001 0976             | +5    | 9°516 | 9°0975               | 0°001 1229             | +5    | 9°515 |
| 26                   | 0491                   | +5    | 516   | 76                   | 0734                   | +4    | 516   | 26                   | 0981                   | +5    | 516   | 76                   | 1234                   | +6    | 515   |
| 27                   | 0496                   | +5    | 516   | 77                   | 0739                   | +5    | 516   | 27                   | 0986                   | +5    | 516   | 77                   | 1240                   | +5    | 515   |
| 28                   | 0501                   | +5    | 516   | 78                   | 0743                   | +5    | 516   | 28                   | 0991                   | +5    | 516   | 78                   | 1245                   | +5    | 515   |
| 29                   | 0506                   | +5    | 516   | 79                   | 0748                   | +5    | 516   | 29                   | 0996                   | +5    | 516   | 79                   | 1250                   | +5    | 515   |
| 9°0830               | 0°001 0511             | +4    | 9°516 | 9°0880               | 0°001 0753             | +5    | 9°516 | 9°0930               | 0°001 1001             | +5    | 9°516 | 9°0980               | 0°001 1255             | +5    | 9°515 |
| 31                   | 0515                   | +5    | 516   | 81                   | 0758                   | +5    | 516   | 31                   | 1006                   | +5    | 516   | 81                   | 1260                   | +5    | 515   |
| 32                   | 0520                   | +5    | 516   | 82                   | 0763                   | +5    | 516   | 32                   | 1011                   | +5    | 516   | 82                   | 1265                   | +5    | 515   |
| 33                   | 0525                   | +5    | 516   | 83                   | 0768                   | +5    | 516   | 33                   | 1016                   | +5    | 516   | 83                   | 1270                   | +5    | 515   |
| 34                   | 0530                   | +5    | 516   | 84                   | 0773                   | +5    | 516   | 34                   | 1021                   | +5    | 516   | 84                   | 1275                   | +6    | 515   |
| 9°0835               | 0°001 0535             | +4    | 9°516 | 9°0885               | 0°001 0778             | +5    | 9°516 | 9°0935               | 0°001 1026             | +5    | 9°516 | 9°0985               | 0°001 1281             | +5    | 9°515 |
| 36                   | 0539                   | +5    | 516   | 86                   | 0783                   | +5    | 516   | 36                   | 1031                   | +5    | 516   | 86                   | 1286                   | +5    | 515   |
| 37                   | 0544                   | +5    | 516   | 87                   | 0788                   | +4    | 516   | 37                   | 1036                   | +5    | 516   | 87                   | 1291                   | +5    | 515   |
| 38                   | 0549                   | +5    | 516   | 88                   | 0792                   | +5    | 516   | 38                   | 1041                   | +5    | 516   | 88                   | 1296                   | +5    | 515   |
| 39                   | 0554                   | +5    | 516   | 89                   | 0797                   | +5    | 516   | 39                   | 1046                   | +5    | 516   | 89                   | 1301                   | +5    | 515   |
| 9°0840               | 0°001 0559             | +4    | 9°516 | 9°0890               | 0°001 0802             | +5    | 9°516 | 9°0940               | 0°001 1051             | +6    | 9°516 | 9°0990               | 0°001 1306             | +6    | 9°515 |
| 41                   | 0563                   | +5    | 516   | 91                   | 0807                   | +5    | 516   | 41                   | 1057                   | +5    | 516   | 91                   | 1312                   | +5    | 515   |
| 42                   | 0568                   | +5    | 516   | 92                   | 0812                   | +5    | 516   | 42                   | 1062                   | +5    | 516   | 92                   | 1317                   | +5    | 515   |
| 43                   | 0573                   | +5    | 516   | 93                   | 0817                   | +5    | 516   | 43                   | 1067                   | +5    | 516   | 93                   | 1322                   | +5    | 515   |
| 44                   | 0578                   | +5    | 516   | 94                   | 0822                   | +5    | 516   | 44                   | 1072                   | +5    | 516   | 94                   | 1327                   | +5    | 515   |
| 9°0845               | 0°001 0583             | +5    | 9°516 | 9°0895               | 0°001 0827             | +5    | 9°516 | 9°0945               | 0°001 1077             | +5    | 9°516 | 9°0995               | 0°001 1332             | +5    | 9°515 |
| 46                   | 0588                   | +4    | 516   | 96                   | 0832                   | +5    | 516   | 46                   | 1082                   | +5    | 516   | 96                   | 1337                   | +5    | 515   |
| 47                   | 0592                   | +5    | 516   | 97                   | 0837                   | +5    | 516   | 47                   | 1087                   | +5    | 516   | 97                   | 1342                   | +5    | 515   |
| 48                   | 0597                   | +5    | 516   | 98                   | 0842                   | +5    | 516   | 48                   | 1092                   | +5    | 516   | 98                   | 1348                   | +6    | 515   |
| 49                   | 0602                   | +5    | 516   | 99                   | 0847                   | +5    | 516   | 49                   | 1097                   | +5    | 516   | 99                   | 1353                   | +5    | 515   |
| 9°0850               | 0°001 0607             |       | 9°516 | 9°0900               | 0°001 0852             |       | 9°516 | 9°0950               | 0°001 1102             |       | 9°516 | 9°1000               | 0°001 1358             |       | 9°515 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff.  | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g  |       |      |    |       |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|--------|-------|----------------------|------------------------|-------|--------|-------|------|----|-------|
| 9'1000               | 0'001                  | 1358  | +5    | 9'515                | 9'1050                 | 0'001 | 1020  | +5                   | 9'515                  | 9'1100 | 0'001 | 1888                 | +5                     | 9'515 | 9'1150 | 0'001 | 2162 | +5 | 9'515 |
| 01                   | 1303                   | +5    | 515   | 51                   | 1025                   | +6    | 515   | 01                   | 1893                   | +6     | 515   | 51                   | 2167                   | +6    | 515    | 51    | 2173 | +6 | 515   |
| 02                   | 1368                   | +6    | 515   | 52                   | 1031                   | +5    | 515   | 02                   | 1899                   | +5     | 515   | 52                   | 2178                   | +5    | 515    | 52    | 2184 | +5 | 515   |
| 03                   | 1374                   | +5    | 515   | 53                   | 1036                   | +5    | 515   | 03                   | 1904                   | +5     | 515   | 53                   | 2184                   | +5    | 515    | 53    | 2190 | +5 | 515   |
| 04                   | 1379                   | +5    | 515   | 54                   | 1041                   | +5    | 515   | 04                   | 1909                   | +6     | 515   | 54                   | 2195                   | +6    | 515    | 54    | 2201 | +6 | 515   |
| 9'1005               | 0'001                  | 1384  | +5    | 9'515                | 9'1055                 | 0'001 | 1046  | +6                   | 9'515                  | 9'1105 | 0'001 | 1915                 | +5                     | 9'515 | 9'1155 | 0'001 | 2189 | +6 | 9'515 |
| 00                   | 1389                   | +5    | 515   | 50                   | 1052                   | +5    | 515   | 00                   | 1920                   | +6     | 515   | 50                   | 2195                   | +6    | 515    | 50    | 2201 | +6 | 515   |
| 07                   | 1394                   | +6    | 515   | 57                   | 1057                   | +5    | 515   | 07                   | 1926                   | +5     | 515   | 57                   | 2207                   | +5    | 515    | 57    | 2213 | +5 | 515   |
| 08                   | 1400                   | +5    | 515   | 58                   | 1062                   | +6    | 515   | 08                   | 1931                   | +6     | 515   | 58                   | 2212                   | +6    | 515    | 58    | 2218 | +6 | 515   |
| 09                   | 1405                   | +5    | 515   | 59                   | 1068                   | +5    | 515   | 09                   | 1937                   | +5     | 515   | 59                   | 2218                   | +5    | 515    | 59    | 2224 | +5 | 515   |
| 9'1010               | 0'001                  | 1410  | +5    | 9'515                | 9'1060                 | 0'001 | 1073  | +5                   | 9'515                  | 9'1110 | 0'001 | 1942                 | +6                     | 9'515 | 9'1160 | 0'001 | 2217 | +6 | 9'515 |
| 11                   | 1415                   | +5    | 515   | 61                   | 1078                   | +6    | 515   | 11                   | 1948                   | +5     | 515   | 61                   | 2223                   | +5    | 515    | 61    | 2229 | +5 | 515   |
| 12                   | 1420                   | +6    | 515   | 62                   | 1084                   | +5    | 515   | 12                   | 1953                   | +6     | 515   | 62                   | 2228                   | +6    | 515    | 62    | 2234 | +6 | 515   |
| 13                   | 1420                   | +5    | 515   | 63                   | 1089                   | +5    | 515   | 13                   | 1958                   | +5     | 515   | 63                   | 2234                   | +5    | 515    | 63    | 2240 | +5 | 515   |
| 14                   | 1431                   | +5    | 515   | 64                   | 1094                   | +6    | 515   | 14                   | 1964                   | +6     | 515   | 64                   | 2240                   | +6    | 515    | 64    | 2246 | +6 | 515   |
| 9'1015               | 0'001                  | 1430  | +5    | 9'515                | 9'1065                 | 0'001 | 1700  | +5                   | 9'515                  | 9'1115 | 0'001 | 1969                 | +6                     | 9'515 | 9'1165 | 0'001 | 2245 | +6 | 9'515 |
| 10                   | 1441                   | +5    | 515   | 66                   | 1705                   | +5    | 515   | 16                   | 1975                   | +5     | 515   | 66                   | 2251                   | +5    | 515    | 66    | 2257 | +5 | 515   |
| 17                   | 1440                   | +6    | 515   | 67                   | 1710                   | +6    | 515   | 17                   | 1980                   | +6     | 515   | 67                   | 2256                   | +6    | 515    | 67    | 2262 | +6 | 515   |
| 18                   | 1452                   | +5    | 515   | 68                   | 1716                   | +5    | 515   | 18                   | 1986                   | +5     | 515   | 68                   | 2262                   | +5    | 515    | 68    | 2268 | +5 | 515   |
| 19                   | 1457                   | +5    | 515   | 69                   | 1721                   | +5    | 515   | 19                   | 1991                   | +6     | 515   | 69                   | 2267                   | +6    | 515    | 69    | 2273 | +6 | 515   |
| 9'1020               | 0'001                  | 1462  | +5    | 9'515                | 9'1070                 | 0'001 | 1720  | +6                   | 9'515                  | 9'1120 | 0'001 | 1997                 | +5                     | 9'515 | 9'1170 | 0'001 | 2273 | +6 | 9'515 |
| 21                   | 1467                   | +6    | 515   | 71                   | 1726                   | +5    | 515   | 21                   | 2002                   | +6     | 515   | 71                   | 2278                   | +6    | 515    | 71    | 2284 | +6 | 515   |
| 22                   | 1473                   | +5    | 515   | 72                   | 1732                   | +5    | 515   | 22                   | 2008                   | +5     | 515   | 72                   | 2284                   | +5    | 515    | 72    | 2290 | +5 | 515   |
| 23                   | 1478                   | +5    | 515   | 73                   | 1738                   | +6    | 515   | 23                   | 2013                   | +6     | 515   | 73                   | 2290                   | +6    | 515    | 73    | 2296 | +6 | 515   |
| 24                   | 1483                   | +5    | 515   | 74                   | 1744                   | +5    | 515   | 24                   | 2018                   | +6     | 515   | 74                   | 2296                   | +6    | 515    | 74    | 2302 | +6 | 515   |
| 9'1025               | 0'001                  | 1488  | +5    | 9'515                | 9'1075                 | 0'001 | 1753  | +5                   | 9'515                  | 9'1125 | 0'001 | 2024                 | +5                     | 9'515 | 9'1175 | 0'001 | 2301 | +6 | 9'515 |
| 26                   | 1493                   | +6    | 515   | 76                   | 1758                   | +6    | 515   | 26                   | 2029                   | +5     | 515   | 76                   | 2307                   | +5    | 515    | 76    | 2313 | +5 | 515   |
| 27                   | 1499                   | +5    | 515   | 77                   | 1764                   | +5    | 515   | 27                   | 2035                   | +6     | 515   | 77                   | 2312                   | +6    | 515    | 77    | 2318 | +6 | 515   |
| 28                   | 1504                   | +5    | 515   | 78                   | 1769                   | +6    | 515   | 28                   | 2040                   | +5     | 515   | 78                   | 2318                   | +5    | 515    | 78    | 2324 | +5 | 515   |
| 29                   | 1509                   | +5    | 515   | 79                   | 1775                   | +5    | 515   | 29                   | 2046                   | +6     | 515   | 79                   | 2323                   | +6    | 515    | 79    | 2329 | +6 | 515   |
| 9'1030               | 0'001                  | 1514  | +6    | 9'515                | 9'1080                 | 0'001 | 1780  | +6                   | 9'515                  | 9'1130 | 0'001 | 2051                 | +6                     | 9'515 | 9'1180 | 0'001 | 2329 | +6 | 9'515 |
| 31                   | 1520                   | +5    | 515   | 81                   | 1785                   | +5    | 515   | 31                   | 2057                   | +5     | 515   | 81                   | 2335                   | +5    | 515    | 81    | 2341 | +5 | 515   |
| 32                   | 1525                   | +5    | 515   | 82                   | 1791                   | +6    | 515   | 32                   | 2062                   | +6     | 515   | 82                   | 2340                   | +6    | 515    | 82    | 2346 | +6 | 515   |
| 33                   | 1530                   | +5    | 515   | 83                   | 1796                   | +5    | 515   | 33                   | 2068                   | +5     | 515   | 83                   | 2346                   | +5    | 515    | 83    | 2352 | +5 | 515   |
| 34                   | 1535                   | +5    | 515   | 84                   | 1801                   | +6    | 515   | 34                   | 2073                   | +6     | 515   | 84                   | 2352                   | +6    | 515    | 84    | 2358 | +6 | 515   |
| 9'1035               | 0'001                  | 1541  | +5    | 9'515                | 9'1085                 | 0'001 | 1807  | +5                   | 9'515                  | 9'1135 | 0'001 | 2070                 | +5                     | 9'515 | 9'1185 | 0'001 | 2357 | +6 | 9'515 |
| 36                   | 1546                   | +5    | 515   | 86                   | 1812                   | +6    | 515   | 36                   | 2084                   | +6     | 515   | 86                   | 2363                   | +6    | 515    | 86    | 2369 | +6 | 515   |
| 37                   | 1551                   | +6    | 515   | 87                   | 1818                   | +5    | 515   | 37                   | 2090                   | +5     | 515   | 87                   | 2368                   | +5    | 515    | 87    | 2374 | +5 | 515   |
| 38                   | 1557                   | +5    | 515   | 88                   | 1823                   | +6    | 515   | 38                   | 2095                   | +6     | 515   | 88                   | 2374                   | +6    | 515    | 88    | 2380 | +6 | 515   |
| 39                   | 1562                   | +5    | 515   | 89                   | 1828                   | +5    | 515   | 39                   | 2101                   | +5     | 515   | 89                   | 2380                   | +5    | 515    | 89    | 2386 | +5 | 515   |
| 9'1040               | 0'001                  | 1567  | +5    | 9'515                | 9'1090                 | 0'001 | 1834  | +5                   | 9'515                  | 9'1140 | 0'001 | 2106                 | +6                     | 9'515 | 9'1190 | 0'001 | 2385 | +6 | 9'515 |
| 41                   | 1572                   | +6    | 515   | 91                   | 1839                   | +6    | 515   | 41                   | 2112                   | +5     | 515   | 91                   | 2391                   | +5    | 515    | 91    | 2397 | +5 | 515   |
| 42                   | 1578                   | +5    | 515   | 92                   | 1844                   | +5    | 515   | 42                   | 2117                   | +6     | 515   | 92                   | 2397                   | +6    | 515    | 92    | 2403 | +6 | 515   |
| 43                   | 1583                   | +5    | 515   | 93                   | 1850                   | +6    | 515   | 43                   | 2123                   | +5     | 515   | 93                   | 2402                   | +5    | 515    | 93    | 2408 | +5 | 515   |
| 44                   | 1588                   | +5    | 515   | 94                   | 1855                   | +5    | 515   | 44                   | 2129                   | +6     | 515   | 94                   | 2408                   | +6    | 515    | 94    | 2414 | +6 | 515   |
| 9'1045               | 0'001                  | 1593  | +6    | 9'515                | 9'1095                 | 0'001 | 1861  | +5                   | 9'515                  | 9'1145 | 0'001 | 2134                 | +6                     | 9'515 | 9'1195 | 0'001 | 2414 | +5 | 9'515 |
| 46                   | 1599                   | +5    | 515   | 96                   | 1866                   | +6    | 515   | 46                   | 2140                   | +5     | 515   | 96                   | 2419                   | +5    | 515    | 96    | 2425 | +5 | 515   |
| 47                   | 1604                   | +5    | 515   | 97                   | 1872                   | +5    | 515   | 47                   | 2145                   | +6     | 515   | 97                   | 2425                   | +6    | 515    | 97    | 2431 | +6 | 515   |
| 48                   | 1609                   | +6    | 515   | 98                   | 1877                   | +5    | 515   | 48                   | 2151                   | +5     | 515   | 98                   | 2431                   | +5    | 515    | 98    | 2437 | +5 | 515   |
| 49                   | 1615                   | +5    | 515   | 99                   | 1882                   | +6    | 515   | 49                   | 2156                   | +6     | 515   | 99                   | 2436                   | +6    | 515    | 99    | 2442 | +6 | 515   |
| 9'1050               | 0'001                  | 1620  |       | 9'515                | 9'1100                 | 0'001 | 1888  |                      | 9'515                  | 9'1150 | 0'001 | 2162                 |                        | 9'515 | 9'1200 | 0'001 | 2442 |    | 9'515 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  |
|----------------------|-------------------------|-------|--------|----------------------|-------------------------|-------|--------|----------------------|-------------------------|-------|--------|----------------------|-------------------------|-------|--------|
| 9° 1200              | 0° 001 2442             | +0    | 9° 515 | 9° 1250              | 0° 001 2729             | +5    | 9° 514 | 9° 1300              | 0° 001 3022             | +6    | 9° 514 | 9° 1350              | 0° 001 3321             | +7    | 9° 514 |
| 01                   | 2448                    | +5    | 515    | 51                   | 2734                    | +6    | 514    | 01                   | 3028                    | +6    | 514    | 51                   | 3328                    | +6    | 514    |
| 02                   | 2453                    | +6    | 515    | 52                   | 2740                    | +6    | 514    | 02                   | 3034                    | +5    | 514    | 52                   | 3334                    | +6    | 514    |
| 03                   | 2459                    | +6    | 515    | 53                   | 2746                    | +6    | 514    | 03                   | 3039                    | +6    | 514    | 53                   | 3340                    | +6    | 514    |
| 04                   | 2465                    | +5    | 515    | 54                   | 2752                    | +6    | 514    | 04                   | 3045                    | +6    | 514    | 54                   | 3340                    | +6    | 514    |
| 9° 1205              | 0° 001 2470             | +6    | 9° 515 | 9° 1255              | 0° 001 2758             | +5    | 9° 514 | 9° 1305              | 0° 001 3051             | +6    | 9° 514 | 9° 1355              | 0° 001 3352             | +6    | 9° 514 |
| 06                   | 2470                    | +6    | 515    | 50                   | 2703                    | +6    | 514    | 06                   | 3057                    | +6    | 514    | 56                   | 3358                    | +6    | 514    |
| 07                   | 2482                    | +5    | 515    | 57                   | 2709                    | +6    | 514    | 07                   | 3063                    | +6    | 514    | 57                   | 3364                    | +6    | 514    |
| 08                   | 2487                    | +6    | 515    | 58                   | 2775                    | +6    | 514    | 08                   | 3069                    | +6    | 514    | 58                   | 3370                    | +6    | 514    |
| 09                   | 2493                    | +6    | 515    | 59                   | 2781                    | +6    | 514    | 09                   | 3075                    | +6    | 514    | 59                   | 3370                    | +6    | 514    |
| 9° 1210              | 0° 001 2499             | +5    | 9° 515 | 9° 1260              | 0° 001 2787             | +5    | 9° 514 | 9° 1310              | 0° 001 3081             | +6    | 9° 514 | 9° 1360              | 0° 001 3382             | +6    | 9° 514 |
| 11                   | 2504                    | +6    | 515    | 61                   | 2792                    | +6    | 514    | 11                   | 3087                    | +6    | 514    | 61                   | 3388                    | +6    | 514    |
| 12                   | 2510                    | +6    | 515    | 62                   | 2798                    | +6    | 514    | 12                   | 3093                    | +6    | 514    | 62                   | 3394                    | +6    | 514    |
| 13                   | 2516                    | +6    | 515    | 63                   | 2804                    | +6    | 514    | 13                   | 3099                    | +6    | 514    | 63                   | 3400                    | +7    | 514    |
| 14                   | 2522                    | +5    | 515    | 64                   | 2810                    | +6    | 514    | 14                   | 3105                    | +6    | 514    | 64                   | 3407                    | +6    | 514    |
| 9° 1215              | 0° 001 2527             | +6    | 9° 515 | 9° 1265              | 0° 001 2810             | +6    | 9° 514 | 9° 1315              | 0° 001 3111             | +6    | 9° 514 | 9° 1365              | 0° 001 3413             | +6    | 9° 514 |
| 16                   | 2533                    | +6    | 515    | 66                   | 2822                    | +5    | 514    | 16                   | 3117                    | +6    | 514    | 66                   | 3419                    | +6    | 514    |
| 17                   | 2539                    | +5    | 515    | 67                   | 2827                    | +6    | 514    | 17                   | 3123                    | +6    | 514    | 67                   | 3425                    | +6    | 514    |
| 18                   | 2544                    | +6    | 515    | 68                   | 2833                    | +6    | 514    | 18                   | 3129                    | +6    | 514    | 68                   | 3431                    | +6    | 514    |
| 19                   | 2550                    | +6    | 515    | 69                   | 2839                    | +6    | 514    | 19                   | 3135                    | +6    | 514    | 69                   | 3437                    | +6    | 514    |
| 9° 1220              | 0° 001 2550             | +6    | 9° 515 | 9° 1270              | 0° 001 2845             | +6    | 9° 514 | 9° 1320              | 0° 001 3141             | +6    | 9° 514 | 9° 1370              | 0° 001 3443             | +6    | 9° 514 |
| 21                   | 2502                    | +5    | 515    | 71                   | 2851                    | +6    | 514    | 21                   | 3147                    | +6    | 514    | 71                   | 3449                    | +7    | 514    |
| 22                   | 2507                    | +6    | 515    | 72                   | 2857                    | +6    | 514    | 22                   | 3153                    | +6    | 514    | 72                   | 3450                    | +6    | 514    |
| 23                   | 2513                    | +6    | 515    | 73                   | 2863                    | +5    | 514    | 23                   | 3159                    | +6    | 514    | 73                   | 3462                    | +6    | 514    |
| 24                   | 2519                    | +5    | 515    | 74                   | 2868                    | +6    | 514    | 24                   | 3165                    | +6    | 514    | 74                   | 3468                    | +6    | 514    |
| 9° 1225              | 0° 001 2584             | +6    | 9° 515 | 9° 1275              | 0° 001 2874             | +6    | 9° 514 | 9° 1325              | 0° 001 3171             | +6    | 9° 514 | 9° 1375              | 0° 001 3474             | +6    | 9° 514 |
| 26                   | 2590                    | +6    | 515    | 76                   | 2880                    | +6    | 514    | 26                   | 3177                    | +6    | 514    | 76                   | 3480                    | +6    | 514    |
| 27                   | 2596                    | +6    | 515    | 77                   | 2886                    | +6    | 514    | 27                   | 3183                    | +6    | 514    | 77                   | 3486                    | +6    | 514    |
| 28                   | 2602                    | +6    | 515    | 78                   | 2892                    | +6    | 514    | 28                   | 3189                    | +6    | 514    | 78                   | 3492                    | +6    | 514    |
| 29                   | 2607                    | +6    | 515    | 79                   | 2898                    | +6    | 514    | 29                   | 3195                    | +6    | 514    | 79                   | 3498                    | +7    | 514    |
| 9° 1230              | 0° 001 2613             | +6    | 9° 515 | 9° 1280              | 0° 001 2904             | +5    | 9° 514 | 9° 1330              | 0° 001 3201             | +6    | 9° 514 | 9° 1380              | 0° 001 3505             | +6    | 9° 514 |
| 31                   | 2619                    | +6    | 515    | 81                   | 2909                    | +6    | 514    | 31                   | 3207                    | +6    | 514    | 81                   | 3511                    | +6    | 514    |
| 32                   | 2625                    | +5    | 515    | 82                   | 2915                    | +6    | 514    | 32                   | 3213                    | +6    | 514    | 82                   | 3517                    | +6    | 514    |
| 33                   | 2630                    | +6    | 515    | 83                   | 2921                    | +6    | 514    | 33                   | 3219                    | +6    | 514    | 83                   | 3523                    | +6    | 514    |
| 34                   | 2636                    | +6    | 515    | 84                   | 2927                    | +6    | 514    | 34                   | 3225                    | +6    | 514    | 84                   | 3529                    | +6    | 514    |
| 9° 1235              | 0° 001 2642             | +6    | 9° 515 | 9° 1285              | 0° 001 2933             | +6    | 9° 514 | 9° 1335              | 0° 001 3231             | +6    | 9° 514 | 9° 1385              | 0° 001 3535             | +7    | 9° 514 |
| 36                   | 2648                    | +5    | 515    | 86                   | 2939                    | +6    | 514    | 36                   | 3237                    | +6    | 514    | 86                   | 3542                    | +6    | 514    |
| 37                   | 2653                    | +6    | 515    | 87                   | 2945                    | +6    | 514    | 37                   | 3243                    | +6    | 514    | 87                   | 3548                    | +6    | 514    |
| 38                   | 2659                    | +6    | 514    | 88                   | 2951                    | +6    | 514    | 38                   | 3249                    | +6    | 514    | 88                   | 3554                    | +6    | 514    |
| 39                   | 2665                    | +6    | 514    | 89                   | 2957                    | +5    | 514    | 39                   | 3255                    | +6    | 514    | 89                   | 3560                    | +6    | 514    |
| 9° 1240              | 0° 001 2671             | +5    | 9° 514 | 9° 1290              | 0° 001 2962             | +6    | 9° 514 | 9° 1340              | 0° 001 3261             | +6    | 9° 514 | 9° 1390              | 0° 001 3560             | +6    | 9° 514 |
| 41                   | 2676                    | +6    | 514    | 91                   | 2968                    | +6    | 514    | 41                   | 3267                    | +6    | 514    | 91                   | 3572                    | +7    | 514    |
| 42                   | 2682                    | +6    | 514    | 92                   | 2974                    | +6    | 514    | 42                   | 3273                    | +6    | 514    | 92                   | 3579                    | +6    | 514    |
| 43                   | 2688                    | +6    | 514    | 93                   | 2980                    | +6    | 514    | 43                   | 3279                    | +6    | 514    | 93                   | 3585                    | +6    | 514    |
| 44                   | 2694                    | +6    | 514    | 94                   | 2986                    | +6    | 514    | 44                   | 3285                    | +6    | 514    | 94                   | 3591                    | +6    | 514    |
| 9° 1245              | 0° 001 2700             | +5    | 9° 514 | 9° 1295              | 0° 001 2992             | +6    | 9° 514 | 9° 1345              | 0° 001 3291             | +6    | 9° 514 | 9° 1395              | 0° 001 3597             | +6    | 9° 514 |
| 46                   | 2705                    | +6    | 514    | 96                   | 2998                    | +6    | 514    | 46                   | 3297                    | +6    | 514    | 96                   | 3603                    | +6    | 514    |
| 47                   | 2711                    | +6    | 514    | 97                   | 3004                    | +6    | 514    | 47                   | 3303                    | +6    | 514    | 97                   | 3609                    | +7    | 514    |
| 48                   | 2717                    | +6    | 514    | 98                   | 3010                    | +6    | 514    | 48                   | 3309                    | +6    | 514    | 98                   | 3616                    | +6    | 514    |
| 49                   | 2723                    | +6    | 514    | 99                   | 3016                    | +6    | 514    | 49                   | 3315                    | +6    | 514    | 99                   | 3622                    | +6    | 514    |
| 9° 1250              | 0° 001 2729             |       | 9° 514 | 9° 1300              | 0° 001 3022             |       | 9° 514 | 9° 1350              | 0° 001 3321             |       | 9° 514 | 9° 1400              | 0° 001 3628             |       | 9° 514 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff.  | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g  |       |      |    |       |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|--------|-------|----------------------|------------------------|-------|--------|-------|------|----|-------|
| 9'1400               | 0'001                  | 3028  | +6    | 9'514                | 9'1450                 | 0'001 | 3942  | +6                   | 9'514                  | 9'1500 | 0'001 | 4202                 | +7                     | 9'513 | 9'1550 | 0'001 | 4590 | +7 | 9'513 |
| 01                   | 3034                   | +6    | 514   | 51                   | 3948                   | +6    | 514   | 01                   | 4200                   | +7     | 513   | 51                   | 4597                   | +7    | 513    | 52    | 4604 | +6 | 513   |
| 02                   | 3040                   | +7    | 514   | 52                   | 3954                   | +7    | 514   | 02                   | 4275                   | +0     | 513   | 52                   | 4610                   | +6    | 513    | 53    | 4610 | +7 | 513   |
| 03                   | 3047                   | +6    | 514   | 53                   | 3961                   | +6    | 514   | 03                   | 4282                   | +6     | 513   | 53                   | 4617                   | +7    | 513    | 54    | 4617 | +7 | 513   |
| 04                   | 3053                   | +6    | 514   | 54                   | 3967                   | +6    | 514   | 04                   | 4288                   | +7     | 513   | 54                   | 4617                   | +7    | 513    |       |      |    |       |
| 9'1405               | 0'001                  | 3059  | +6    | 9'514                | 9'1455                 | 0'001 | 3973  | +7                   | 9'514                  | 9'1505 | 0'001 | 4295                 | +6                     | 9'513 | 9'1555 | 0'001 | 4624 | +6 | 9'513 |
| 06                   | 3065                   | +7    | 514   | 50                   | 3980                   | +6    | 514   | 06                   | 4301                   | +7     | 513   | 50                   | 4630                   | +7    | 513    | 56    | 4630 | +7 | 513   |
| 07                   | 3072                   | +6    | 514   | 57                   | 3986                   | +6    | 514   | 07                   | 4308                   | +6     | 513   | 57                   | 4637                   | +6    | 513    | 57    | 4637 | +6 | 513   |
| 08                   | 3078                   | +6    | 514   | 58                   | 3992                   | +6    | 514   | 08                   | 4314                   | +6     | 513   | 58                   | 4643                   | +6    | 513    | 58    | 4643 | +6 | 513   |
| 09                   | 3084                   | +6    | 514   | 59                   | 3999                   | +7    | 514   | 09                   | 4321                   | +7     | 513   | 59                   | 4650                   | +7    | 513    |       |      |    |       |
| 9'1410               | 0'001                  | 3090  | +6    | 9'514                | 9'1460                 | 0'001 | 4005  | +7                   | 9'514                  | 9'1510 | 0'001 | 4327                 | +7                     | 9'513 | 9'1560 | 0'001 | 4657 | +6 | 9'513 |
| 11                   | 3096                   | +7    | 514   | 01                   | 4012                   | +6    | 514   | 11                   | 4334                   | +6     | 513   | 01                   | 4663                   | +7    | 513    | 02    | 4670 | +7 | 513   |
| 12                   | 3703                   | +6    | 514   | 02                   | 4018                   | +6    | 514   | 12                   | 4340                   | +6     | 513   | 02                   | 4677                   | +6    | 513    | 03    | 4677 | +6 | 513   |
| 13                   | 3709                   | +6    | 514   | 03                   | 4024                   | +7    | 514   | 13                   | 4347                   | +6     | 513   | 03                   | 4683                   | +7    | 513    | 04    | 4683 | +7 | 513   |
| 14                   | 3715                   | +6    | 514   | 04                   | 4031                   | +6    | 514   | 14                   | 4353                   | +7     | 513   | 04                   | 4683                   | +7    | 513    |       |      |    |       |
| 9'1415               | 0'001                  | 3721  | +7    | 9'514                | 9'1465                 | 0'001 | 4037  | +6                   | 9'514                  | 9'1515 | 0'001 | 4360                 | +6                     | 9'513 | 9'1565 | 0'001 | 4690 | +7 | 9'513 |
| 16                   | 3728                   | +6    | 514   | 06                   | 4043                   | +6    | 514   | 16                   | 4366                   | +6     | 513   | 06                   | 4697                   | +7    | 513    | 06    | 4697 | +7 | 513   |
| 17                   | 3734                   | +6    | 514   | 07                   | 4050                   | +6    | 514   | 17                   | 4373                   | +7     | 513   | 07                   | 4704                   | +6    | 513    | 07    | 4704 | +6 | 513   |
| 18                   | 3740                   | +6    | 514   | 08                   | 4056                   | +7    | 514   | 18                   | 4380                   | +6     | 513   | 08                   | 4710                   | +7    | 513    | 08    | 4710 | +7 | 513   |
| 19                   | 3746                   | +7    | 514   | 09                   | 4063                   | +6    | 514   | 19                   | 4386                   | +7     | 513   | 09                   | 4717                   | +7    | 513    |       |      |    |       |
| 9'1420               | 0'001                  | 3753  | +6    | 9'514                | 9'1470                 | 0'001 | 4069  | +6                   | 9'514                  | 9'1520 | 0'001 | 4393                 | +6                     | 9'513 | 9'1570 | 0'001 | 4724 | +6 | 9'513 |
| 21                   | 3759                   | +6    | 514   | 11                   | 4075                   | +7    | 514   | 21                   | 4399                   | +7     | 513   | 11                   | 4730                   | +7    | 513    | 11    | 4730 | +7 | 513   |
| 22                   | 3765                   | +6    | 514   | 12                   | 4082                   | +6    | 514   | 22                   | 4406                   | +6     | 513   | 12                   | 4737                   | +7    | 513    | 12    | 4737 | +7 | 513   |
| 23                   | 3771                   | +7    | 514   | 13                   | 4088                   | +7    | 514   | 23                   | 4412                   | +7     | 513   | 13                   | 4744                   | +6    | 513    | 13    | 4744 | +6 | 513   |
| 24                   | 3778                   | +6    | 514   | 14                   | 4095                   | +6    | 514   | 24                   | 4419                   | +6     | 513   | 14                   | 4750                   | +7    | 513    |       |      |    |       |
| 9'1425               | 0'001                  | 3784  | +6    | 9'514                | 9'1475                 | 0'001 | 4101  | +7                   | 9'514                  | 9'1525 | 0'001 | 4425                 | +7                     | 9'513 | 9'1575 | 0'001 | 4757 | +7 | 9'513 |
| 26                   | 3790                   | +7    | 514   | 16                   | 4108                   | +6    | 514   | 26                   | 4432                   | +7     | 513   | 16                   | 4764                   | +7    | 513    | 16    | 4764 | +7 | 513   |
| 27                   | 3797                   | +6    | 514   | 17                   | 4114                   | +6    | 514   | 27                   | 4439                   | +6     | 513   | 17                   | 4771                   | +6    | 513    | 17    | 4771 | +6 | 513   |
| 28                   | 3803                   | +6    | 514   | 18                   | 4120                   | +7    | 514   | 28                   | 4445                   | +6     | 513   | 18                   | 4777                   | +7    | 513    | 18    | 4777 | +7 | 513   |
| 29                   | 3809                   | +6    | 514   | 19                   | 4127                   | +6    | 514   | 29                   | 4452                   | +6     | 513   | 19                   | 4784                   | +7    | 513    |       |      |    |       |
| 9'1430               | 0'001                  | 3815  | +7    | 9'514                | 9'1480                 | 0'001 | 4133  | +7                   | 9'514                  | 9'1530 | 0'001 | 4458                 | +7                     | 9'513 | 9'1580 | 0'001 | 4791 | +6 | 9'513 |
| 31                   | 3822                   | +6    | 514   | 20                   | 4140                   | +6    | 514   | 31                   | 4465                   | +6     | 513   | 20                   | 4797                   | +7    | 513    | 20    | 4797 | +7 | 513   |
| 32                   | 3828                   | +6    | 514   | 21                   | 4146                   | +6    | 514   | 32                   | 4471                   | +7     | 513   | 21                   | 4804                   | +7    | 513    | 21    | 4804 | +7 | 513   |
| 33                   | 3834                   | +7    | 514   | 22                   | 4152                   | +6    | 514   | 33                   | 4478                   | +7     | 513   | 22                   | 4811                   | +7    | 513    | 22    | 4811 | +7 | 513   |
| 34                   | 3841                   | +6    | 514   | 23                   | 4159                   | +6    | 514   | 34                   | 4485                   | +6     | 513   | 23                   | 4818                   | +6    | 513    | 23    | 4818 | +6 | 513   |
| 9'1435               | 0'001                  | 3847  | +6    | 9'514                | 9'1485                 | 0'001 | 4165  | +7                   | 9'513                  | 9'1535 | 0'001 | 4491                 | +7                     | 9'513 | 9'1585 | 0'001 | 4824 | +7 | 9'513 |
| 36                   | 3853                   | +6    | 514   | 24                   | 4172                   | +6    | 513   | 36                   | 4498                   | +6     | 513   | 24                   | 4831                   | +7    | 513    | 24    | 4831 | +7 | 513   |
| 37                   | 3859                   | +7    | 514   | 25                   | 4178                   | +7    | 513   | 37                   | 4504                   | +7     | 513   | 25                   | 4838                   | +7    | 513    | 25    | 4838 | +7 | 513   |
| 38                   | 3866                   | +6    | 514   | 26                   | 4185                   | +6    | 513   | 38                   | 4511                   | +7     | 513   | 26                   | 4845                   | +6    | 513    | 26    | 4845 | +6 | 513   |
| 39                   | 3872                   | +6    | 514   | 27                   | 4191                   | +7    | 513   | 39                   | 4518                   | +6     | 513   | 27                   | 4851                   | +7    | 513    |       |      |    |       |
| 9'1440               | 0'001                  | 3878  | +7    | 9'514                | 9'1490                 | 0'001 | 4198  | +6                   | 9'513                  | 9'1540 | 0'001 | 4524                 | +7                     | 9'513 | 9'1590 | 0'001 | 4858 | +7 | 9'513 |
| 41                   | 3885                   | +6    | 514   | 28                   | 4204                   | +7    | 513   | 41                   | 4531                   | +6     | 513   | 28                   | 4865                   | +7    | 513    | 28    | 4865 | +7 | 513   |
| 42                   | 3891                   | +6    | 514   | 29                   | 4211                   | +6    | 513   | 42                   | 4537                   | +7     | 513   | 29                   | 4872                   | +6    | 513    | 29    | 4872 | +6 | 513   |
| 43                   | 3897                   | +7    | 514   | 30                   | 4217                   | +6    | 513   | 43                   | 4544                   | +7     | 513   | 30                   | 4878                   | +7    | 513    | 30    | 4878 | +7 | 513   |
| 44                   | 3904                   | +6    | 514   | 31                   | 4223                   | +7    | 513   | 44                   | 4551                   | +6     | 513   | 31                   | 4885                   | +7    | 513    |       |      |    |       |
| 9'1445               | 0'001                  | 3910  | +6    | 9'514                | 9'1495                 | 0'001 | 4230  | +6                   | 9'513                  | 9'1545 | 0'001 | 4557                 | +7                     | 9'513 | 9'1595 | 0'001 | 4892 | +7 | 9'513 |
| 46                   | 3910                   | +7    | 514   | 32                   | 4230                   | +7    | 513   | 46                   | 4564                   | +6     | 513   | 32                   | 4899                   | +6    | 513    | 32    | 4899 | +6 | 513   |
| 47                   | 3923                   | +6    | 514   | 33                   | 4243                   | +7    | 513   | 47                   | 4570                   | +7     | 513   | 33                   | 4905                   | +7    | 513    | 33    | 4905 | +7 | 513   |
| 48                   | 3929                   | +6    | 514   | 34                   | 4249                   | +7    | 513   | 48                   | 4577                   | +7     | 513   | 34                   | 4912                   | +7    | 513    | 34    | 4912 | +7 | 513   |
| 49                   | 3935                   | +7    | 514   | 35                   | 4256                   | +6    | 513   | 49                   | 4584                   | +6     | 513   | 35                   | 4919                   | +7    | 513    |       |      |    |       |
| 9'1450               | 0'001                  | 3942  |       | 9'514                | 9'1500                 | 0'001 | 4262  |                      | 9'513                  | 9'1550 | 0'001 | 4590                 |                        | 9'513 | 9'1600 | 0'001 | 4926 |    | 9'513 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. log g |       |
|----------------------|------------------------|-------------|----------------------|------------------------|-------------|----------------------|------------------------|-------------|----------------------|------------------------|-------------|----------------------|------------------------|-------------|-------|
| 9.1600               | 0.001 4926             | +7          | 9.513                | 9.1650                 | 0.001 5260  | +7                   | 9.513                  | 9.1700      | 0.001 5620           | +7                     | 9.513       | 9.1750               | 0.001 5978             | +8          | 9.512 |
| 01                   | 4933                   | +6          | 513                  | 51                     | 5276        | +7                   | 513                    | 01          | 5627                 | +7                     | 513         | 51                   | 5986                   | +7          | 512   |
| 02                   | 4939                   | +7          | 513                  | 52                     | 5283        | +7                   | 513                    | 02          | 5634                 | +7                     | 513         | 52                   | 5993                   | +7          | 512   |
| 03                   | 4946                   | +7          | 513                  | 53                     | 5290        | +7                   | 513                    | 03          | 5641                 | +7                     | 513         | 53                   | 6000                   | +7          | 512   |
| 04                   | 4953                   | +7          | 513                  | 54                     | 5297        | +7                   | 513                    | 04          | 5648                 | +7                     | 513         | 54                   | 6007                   | +8          | 512   |
| 9.1605               | 0.001 4960             | +7          | 9.513                | 9.1655                 | 0.001 5304  | +6                   | 9.513                  | 9.1705      | 0.001 5655           | +7                     | 9.513       | 9.1755               | 0.001 6015             | +7          | 9.512 |
| 06                   | 4967                   | +6          | 513                  | 56                     | 5310        | +7                   | 513                    | 06          | 5662                 | +7                     | 513         | 56                   | 6022                   | +7          | 512   |
| 07                   | 4973                   | +7          | 513                  | 57                     | 5317        | +7                   | 513                    | 07          | 5669                 | +7                     | 512         | 57                   | 6029                   | +8          | 512   |
| 08                   | 4980                   | +7          | 513                  | 58                     | 5324        | +7                   | 513                    | 08          | 5676                 | +8                     | 512         | 58                   | 6037                   | +7          | 512   |
| 09                   | 4987                   | +7          | 513                  | 59                     | 5331        | +7                   | 513                    | 09          | 5684                 | +7                     | 512         | 59                   | 6044                   | +7          | 512   |
| 9.1610               | 0.001 4994             | +7          | 9.513                | 9.1660                 | 0.001 5338  | +7                   | 9.513                  | 9.1710      | 0.001 5691           | +7                     | 9.512       | 9.1760               | 0.001 6051             | +7          | 9.512 |
| 11                   | 5001                   | +6          | 513                  | 61                     | 5345        | +7                   | 513                    | 11          | 5698                 | +7                     | 512         | 61                   | 6058                   | +8          | 512   |
| 12                   | 5007                   | +7          | 513                  | 62                     | 5352        | +7                   | 513                    | 12          | 5705                 | +7                     | 512         | 62                   | 6066                   | +7          | 512   |
| 13                   | 5014                   | +7          | 513                  | 63                     | 5359        | +7                   | 513                    | 13          | 5712                 | +7                     | 512         | 63                   | 6073                   | +7          | 512   |
| 14                   | 5021                   | +7          | 513                  | 64                     | 5366        | +7                   | 513                    | 14          | 5719                 | +7                     | 512         | 64                   | 6080                   | +8          | 512   |
| 9.1615               | 0.001 5028             | +7          | 9.513                | 9.1665                 | 0.001 5373  | +7                   | 9.513                  | 9.1715      | 0.001 5726           | +8                     | 9.512       | 9.1765               | 0.001 6088             | +7          | 9.512 |
| 16                   | 5035                   | +7          | 513                  | 66                     | 5380        | +7                   | 513                    | 16          | 5734                 | +7                     | 512         | 66                   | 6095                   | +7          | 512   |
| 17                   | 5042                   | +7          | 513                  | 67                     | 5387        | +7                   | 513                    | 17          | 5741                 | +7                     | 512         | 67                   | 6102                   | +8          | 512   |
| 18                   | 5048                   | +7          | 513                  | 68                     | 5394        | +7                   | 513                    | 18          | 5748                 | +7                     | 512         | 68                   | 6110                   | +7          | 512   |
| 19                   | 5055                   | +7          | 513                  | 69                     | 5401        | +7                   | 513                    | 19          | 5755                 | +7                     | 512         | 69                   | 6117                   | +7          | 512   |
| 9.1620               | 0.001 5062             | +7          | 9.513                | 9.1670                 | 0.001 5408  | +7                   | 9.513                  | 9.1720      | 0.001 5762           | +7                     | 9.512       | 9.1770               | 0.001 6124             | +7          | 9.512 |
| 21                   | 5069                   | +7          | 513                  | 71                     | 5415        | +7                   | 513                    | 21          | 5769                 | +7                     | 512         | 71                   | 6131                   | +8          | 512   |
| 22                   | 5076                   | +7          | 513                  | 72                     | 5422        | +7                   | 513                    | 22          | 5776                 | +8                     | 512         | 72                   | 6139                   | +7          | 512   |
| 23                   | 5083                   | +7          | 513                  | 73                     | 5429        | +7                   | 513                    | 23          | 5784                 | +7                     | 512         | 73                   | 6146                   | +7          | 512   |
| 24                   | 5089                   | +6          | 513                  | 74                     | 5436        | +7                   | 513                    | 24          | 5791                 | +7                     | 512         | 74                   | 6153                   | +8          | 512   |
| 9.1625               | 0.001 5096             | +7          | 9.513                | 9.1675                 | 0.001 5443  | +7                   | 9.513                  | 9.1725      | 0.001 5798           | +7                     | 9.512       | 9.1775               | 0.001 6161             | +7          | 9.512 |
| 26                   | 5103                   | +7          | 513                  | 76                     | 5450        | +7                   | 513                    | 26          | 5805                 | +7                     | 512         | 76                   | 6168                   | +7          | 512   |
| 27                   | 5110                   | +7          | 513                  | 77                     | 5457        | +7                   | 513                    | 27          | 5812                 | +7                     | 512         | 77                   | 6175                   | +8          | 512   |
| 28                   | 5117                   | +7          | 513                  | 78                     | 5464        | +7                   | 513                    | 28          | 5820                 | +8                     | 512         | 78                   | 6183                   | +7          | 512   |
| 29                   | 5124                   | +7          | 513                  | 79                     | 5471        | +7                   | 513                    | 29          | 5827                 | +7                     | 512         | 79                   | 6190                   | +8          | 512   |
| 9.1630               | 0.001 5131             | +7          | 9.513                | 9.1680                 | 0.001 5478  | +7                   | 9.513                  | 9.1730      | 0.001 5834           | +7                     | 9.512       | 9.1780               | 0.001 6198             | +7          | 9.512 |
| 31                   | 5138                   | +6          | 513                  | 81                     | 5485        | +7                   | 513                    | 31          | 5841                 | +7                     | 512         | 81                   | 6205                   | +7          | 512   |
| 32                   | 5144                   | +7          | 513                  | 82                     | 5492        | +7                   | 513                    | 32          | 5848                 | +8                     | 512         | 82                   | 6212                   | +8          | 512   |
| 33                   | 5151                   | +7          | 513                  | 83                     | 5499        | +8                   | 513                    | 33          | 5855                 | +7                     | 512         | 83                   | 6220                   | +7          | 512   |
| 34                   | 5158                   | +7          | 513                  | 84                     | 5507        | +7                   | 513                    | 34          | 5863                 | +7                     | 512         | 84                   | 6227                   | +7          | 512   |
| 9.1635               | 0.001 5165             | +7          | 9.513                | 9.1685                 | 0.001 5514  | +7                   | 9.513                  | 9.1735      | 0.001 5870           | +7                     | 9.512       | 9.1785               | 0.001 6234             | +8          | 9.512 |
| 36                   | 5172                   | +7          | 513                  | 86                     | 5521        | +7                   | 513                    | 36          | 5877                 | +7                     | 512         | 86                   | 6242                   | +7          | 512   |
| 37                   | 5179                   | +7          | 513                  | 87                     | 5528        | +7                   | 513                    | 37          | 5884                 | +8                     | 512         | 87                   | 6249                   | +7          | 512   |
| 38                   | 5186                   | +7          | 513                  | 88                     | 5535        | +7                   | 513                    | 38          | 5892                 | +7                     | 512         | 88                   | 6256                   | +8          | 512   |
| 39                   | 5193                   | +7          | 513                  | 89                     | 5542        | +7                   | 513                    | 39          | 5899                 | +7                     | 512         | 89                   | 6264                   | +7          | 512   |
| 9.1640               | 0.001 5200             | +6          | 9.513                | 9.1690                 | 0.001 5549  | +7                   | 9.513                  | 9.1740      | 0.001 5906           | +7                     | 9.512       | 9.1790               | 0.001 6271             | +8          | 9.512 |
| 41                   | 5206                   | +7          | 513                  | 91                     | 5556        | +7                   | 513                    | 41          | 5913                 | +7                     | 512         | 91                   | 6279                   | +7          | 512   |
| 42                   | 5213                   | +7          | 513                  | 92                     | 5563        | +7                   | 513                    | 42          | 5920                 | +8                     | 512         | 92                   | 6286                   | +7          | 512   |
| 43                   | 5220                   | +7          | 513                  | 93                     | 5570        | +7                   | 513                    | 43          | 5928                 | +7                     | 512         | 93                   | 6293                   | +8          | 512   |
| 44                   | 5227                   | +7          | 513                  | 94                     | 5577        | +7                   | 513                    | 44          | 5935                 | +7                     | 512         | 94                   | 6301                   | +7          | 512   |
| 9.1645               | 0.001 5234             | +7          | 9.513                | 9.1695                 | 0.001 5584  | +7                   | 9.513                  | 9.1745      | 0.001 5942           | +7                     | 9.512       | 9.1795               | 0.001 6308             | +8          | 9.512 |
| 46                   | 5241                   | +7          | 513                  | 96                     | 5591        | +7                   | 513                    | 46          | 5949                 | +8                     | 512         | 96                   | 6316                   | +7          | 512   |
| 47                   | 5248                   | +7          | 513                  | 97                     | 5598        | +7                   | 513                    | 47          | 5957                 | +7                     | 512         | 97                   | 6323                   | +7          | 512   |
| 48                   | 5255                   | +7          | 513                  | 98                     | 5605        | +8                   | 513                    | 48          | 5964                 | +7                     | 512         | 98                   | 6330                   | +8          | 512   |
| 49                   | 5262                   | +7          | 513                  | 99                     | 5613        | +7                   | 513                    | 49          | 5971                 | +7                     | 512         | 99                   | 6338                   | +7          | 512   |
| 9.1650               | 0.001 5269             |             | 9.513                | 9.1700                 | 0.001 5620  |                      | 9.513                  | 9.1750      | 0.001 5978           |                        | 9.512       | 9.1800               | 0.001 6345             |             | 9.512 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff.  | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g  |       |      |    |       |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|--------|-------|----------------------|------------------------|-------|--------|-------|------|----|-------|
| 9'1800               | 0'001                  | 6345  | +8    | 9'512                | 9'1850                 | 0'001 | 6720  | +8                   | 9'512                  | 9'1900 | 0'001 | 7104                 | +8                     | 9'512 | 9'1950 | 0'001 | 7490 | +8 | 9'511 |
| 01                   | 6353                   | +7    | 512   | 51                   | 6728                   | +8    | 512   | 01                   | 7112                   | +8     | 512   | 51                   | 7504                   | +8    | 511    | 51    | 7504 | +8 | 511   |
| 02                   | 6360                   | +8    | 512   | 52                   | 6736                   | +7    | 512   | 02                   | 7120                   | +7     | 512   | 52                   | 7512                   | +8    | 511    | 52    | 7512 | +8 | 511   |
| 03                   | 6368                   | +7    | 512   | 53                   | 6743                   | +8    | 512   | 03                   | 7127                   | +8     | 512   | 53                   | 7520                   | +8    | 511    | 53    | 7520 | +8 | 511   |
| 04                   | 6375                   | +7    | 512   | 54                   | 6751                   | +7    | 512   | 04                   | 7135                   | +8     | 512   | 54                   | 7528                   | +8    | 511    | 54    | 7528 | +8 | 511   |
| 9'1805               | 0'001                  | 6382  | +8    | 9'512                | 9'1855                 | 0'001 | 6758  | +8                   | 9'512                  | 9'1905 | 0'001 | 7143                 | +8                     | 9'512 | 9'1955 | 0'001 | 7530 | +8 | 9'511 |
| 06                   | 6390                   | +7    | 512   | 56                   | 6766                   | +8    | 512   | 06                   | 7151                   | +8     | 512   | 56                   | 7544                   | +8    | 511    | 56    | 7544 | +8 | 511   |
| 07                   | 6397                   | +8    | 512   | 57                   | 6774                   | +7    | 512   | 07                   | 7159                   | +7     | 512   | 57                   | 7552                   | +8    | 511    | 57    | 7552 | +8 | 511   |
| 08                   | 6405                   | +7    | 512   | 58                   | 6781                   | +8    | 512   | 08                   | 7166                   | +8     | 512   | 58                   | 7560                   | +8    | 511    | 58    | 7560 | +8 | 511   |
| 09                   | 6412                   | +8    | 512   | 59                   | 6789                   | +8    | 512   | 09                   | 7174                   | +8     | 512   | 59                   | 7568                   | +8    | 511    | 59    | 7568 | +8 | 511   |
| 9'1810               | 0'001                  | 6420  | +7    | 9'512                | 9'1860                 | 0'001 | 6797  | +7                   | 9'512                  | 9'1910 | 0'001 | 7182                 | +8                     | 9'511 | 9'1960 | 0'001 | 7576 | +8 | 9'511 |
| 11                   | 6427                   | +8    | 512   | 61                   | 6804                   | +8    | 512   | 11                   | 7190                   | +7     | 512   | 61                   | 7584                   | +8    | 511    | 61    | 7584 | +8 | 511   |
| 12                   | 6435                   | +7    | 512   | 62                   | 6812                   | +7    | 512   | 12                   | 7197                   | +8     | 511   | 62                   | 7592                   | +8    | 511    | 62    | 7592 | +8 | 511   |
| 13                   | 6442                   | +7    | 512   | 63                   | 6819                   | +8    | 512   | 13                   | 7205                   | +8     | 511   | 63                   | 7600                   | +8    | 511    | 63    | 7600 | +8 | 511   |
| 14                   | 6449                   | +8    | 512   | 64                   | 6827                   | +8    | 512   | 14                   | 7213                   | +8     | 511   | 64                   | 7608                   | +8    | 511    | 64    | 7608 | +8 | 511   |
| 9'1815               | 0'001                  | 6457  | +7    | 9'512                | 9'1865                 | 0'001 | 6835  | +7                   | 9'512                  | 9'1915 | 0'001 | 7221                 | +8                     | 9'511 | 9'1965 | 0'001 | 7616 | +8 | 9'511 |
| 16                   | 6464                   | +8    | 512   | 66                   | 6842                   | +8    | 512   | 16                   | 7229                   | +8     | 511   | 66                   | 7624                   | +8    | 511    | 66    | 7624 | +8 | 511   |
| 17                   | 6472                   | +7    | 512   | 67                   | 6850                   | +8    | 512   | 17                   | 7237                   | +8     | 511   | 67                   | 7632                   | +8    | 511    | 67    | 7632 | +8 | 511   |
| 18                   | 6479                   | +8    | 512   | 68                   | 6858                   | +7    | 512   | 18                   | 7244                   | +8     | 511   | 68                   | 7640                   | +8    | 511    | 68    | 7640 | +8 | 511   |
| 19                   | 6487                   | +7    | 512   | 69                   | 6865                   | +8    | 512   | 19                   | 7252                   | +8     | 511   | 69                   | 7648                   | +8    | 511    | 69    | 7648 | +8 | 511   |
| 9'1820               | 0'001                  | 6494  | +8    | 9'512                | 9'1870                 | 0'001 | 6873  | +8                   | 9'512                  | 9'1920 | 0'001 | 7260                 | +8                     | 9'511 | 9'1970 | 0'001 | 7656 | +8 | 9'511 |
| 21                   | 6502                   | +7    | 512   | 71                   | 6881                   | +7    | 512   | 21                   | 7268                   | +8     | 511   | 71                   | 7664                   | +8    | 511    | 71    | 7664 | +8 | 511   |
| 22                   | 6509                   | +8    | 512   | 72                   | 6888                   | +8    | 512   | 22                   | 7276                   | +8     | 511   | 72                   | 7672                   | +8    | 511    | 72    | 7672 | +8 | 511   |
| 23                   | 6517                   | +7    | 512   | 73                   | 6896                   | +8    | 512   | 23                   | 7284                   | +8     | 511   | 73                   | 7680                   | +8    | 511    | 73    | 7680 | +8 | 511   |
| 24                   | 6524                   | +8    | 512   | 74                   | 6904                   | +7    | 512   | 24                   | 7291                   | +8     | 511   | 74                   | 7688                   | +8    | 511    | 74    | 7688 | +8 | 511   |
| 9'1825               | 0'001                  | 6532  | +7    | 9'512                | 9'1875                 | 0'001 | 6911  | +8                   | 9'512                  | 9'1925 | 0'001 | 7299                 | +8                     | 9'511 | 9'1975 | 0'001 | 7666 | +8 | 9'511 |
| 26                   | 6539                   | +8    | 512   | 76                   | 6919                   | +8    | 512   | 26                   | 7307                   | +8     | 511   | 76                   | 7674                   | +8    | 511    | 76    | 7674 | +8 | 511   |
| 27                   | 6547                   | +7    | 512   | 77                   | 6927                   | +8    | 512   | 27                   | 7315                   | +8     | 511   | 77                   | 7682                   | +8    | 511    | 77    | 7682 | +8 | 511   |
| 28                   | 6554                   | +8    | 512   | 78                   | 6934                   | +7    | 512   | 28                   | 7323                   | +8     | 511   | 78                   | 7690                   | +8    | 511    | 78    | 7690 | +8 | 511   |
| 29                   | 6562                   | +7    | 512   | 79                   | 6942                   | +8    | 512   | 29                   | 7331                   | +7     | 511   | 79                   | 7698                   | +8    | 511    | 79    | 7698 | +8 | 511   |
| 9'1830               | 0'001                  | 6569  | +8    | 9'512                | 9'1880                 | 0'001 | 6950  | +7                   | 9'512                  | 9'1930 | 0'001 | 7338                 | +8                     | 9'511 | 9'1980 | 0'001 | 7706 | +8 | 9'511 |
| 31                   | 6577                   | +7    | 512   | 81                   | 6957                   | +8    | 512   | 31                   | 7346                   | +8     | 511   | 81                   | 7714                   | +8    | 511    | 81    | 7714 | +8 | 511   |
| 32                   | 6584                   | +8    | 512   | 82                   | 6965                   | +8    | 512   | 32                   | 7354                   | +8     | 511   | 82                   | 7722                   | +8    | 511    | 82    | 7722 | +8 | 511   |
| 33                   | 6592                   | +7    | 512   | 83                   | 6973                   | +7    | 512   | 33                   | 7362                   | +8     | 511   | 83                   | 7730                   | +8    | 511    | 83    | 7730 | +8 | 511   |
| 34                   | 6599                   | +8    | 512   | 84                   | 6980                   | +8    | 512   | 34                   | 7370                   | +8     | 511   | 84                   | 7738                   | +8    | 511    | 84    | 7738 | +8 | 511   |
| 9'1835               | 0'001                  | 6607  | +8    | 9'512                | 9'1885                 | 0'001 | 6988  | +8                   | 9'512                  | 9'1935 | 0'001 | 7378                 | +8                     | 9'511 | 9'1985 | 0'001 | 7716 | +8 | 9'511 |
| 36                   | 6615                   | +7    | 512   | 86                   | 6996                   | +8    | 512   | 36                   | 7386                   | +8     | 511   | 86                   | 7744                   | +8    | 511    | 86    | 7744 | +8 | 511   |
| 37                   | 6622                   | +8    | 512   | 87                   | 7004                   | +7    | 512   | 37                   | 7394                   | +8     | 511   | 87                   | 7752                   | +8    | 511    | 87    | 7752 | +8 | 511   |
| 38                   | 6630                   | +7    | 512   | 88                   | 7011                   | +8    | 512   | 38                   | 7402                   | +7     | 511   | 88                   | 7760                   | +8    | 511    | 88    | 7760 | +8 | 511   |
| 39                   | 6637                   | +8    | 512   | 89                   | 7019                   | +8    | 512   | 39                   | 7409                   | +8     | 511   | 89                   | 7768                   | +8    | 511    | 89    | 7768 | +8 | 511   |
| 9'1840               | 0'001                  | 6645  | +7    | 9'512                | 9'1890                 | 0'001 | 7027  | +7                   | 9'512                  | 9'1940 | 0'001 | 7417                 | +8                     | 9'511 | 9'1990 | 0'001 | 7817 | +8 | 9'511 |
| 41                   | 6652                   | +8    | 512   | 91                   | 7034                   | +8    | 512   | 41                   | 7425                   | +8     | 511   | 91                   | 7825                   | +8    | 511    | 91    | 7825 | +8 | 511   |
| 42                   | 6660                   | +7    | 512   | 92                   | 7042                   | +8    | 512   | 42                   | 7433                   | +8     | 511   | 92                   | 7833                   | +8    | 511    | 92    | 7833 | +8 | 511   |
| 43                   | 6667                   | +8    | 512   | 93                   | 7050                   | +8    | 512   | 43                   | 7441                   | +8     | 511   | 93                   | 7841                   | +8    | 511    | 93    | 7841 | +8 | 511   |
| 44                   | 6675                   | +8    | 512   | 94                   | 7058                   | +7    | 512   | 44                   | 7449                   | +8     | 511   | 94                   | 7849                   | +8    | 511    | 94    | 7849 | +8 | 511   |
| 9'1845               | 0'001                  | 6683  | +7    | 9'512                | 9'1895                 | 0'001 | 7065  | +8                   | 9'512                  | 9'1945 | 0'001 | 7457                 | +8                     | 9'511 | 9'1995 | 0'001 | 7857 | +8 | 9'511 |
| 46                   | 6690                   | +8    | 512   | 96                   | 7073                   | +8    | 512   | 46                   | 7465                   | +8     | 511   | 96                   | 7865                   | +8    | 511    | 96    | 7865 | +8 | 511   |
| 47                   | 6698                   | +7    | 512   | 97                   | 7081                   | +8    | 512   | 47                   | 7473                   | +8     | 511   | 97                   | 7873                   | +8    | 511    | 97    | 7873 | +8 | 511   |
| 48                   | 6705                   | +8    | 512   | 98                   | 7089                   | +7    | 512   | 48                   | 7481                   | +8     | 511   | 98                   | 7881                   | +8    | 511    | 98    | 7881 | +8 | 511   |
| 49                   | 6713                   | +7    | 512   | 99                   | 7096                   | +8    | 512   | 49                   | 7489                   | +7     | 511   | 99                   | 7890                   | +8    | 511    | 99    | 7890 | +8 | 511   |
| 9'1850               | 0'001                  | 6720  |       | 9'512                | 9'1900                 | 0'001 | 7104  |                      | 9'512                  | 9'1950 | 0'001 | 7496                 |                        | 9'511 | 9'2000 | 0'001 | 7898 |    | 9'511 |



| log      |                         |               | log      |                         |               | log      |                         |               | log        |                         |               |        |            |    |
|----------|-------------------------|---------------|----------|-------------------------|---------------|----------|-------------------------|---------------|------------|-------------------------|---------------|--------|------------|----|
| $\pm tg$ | $\frac{E-M}{\sin(E-M)}$ | Diff. log $g$ | $\pm tg$ | $\frac{E-M}{\sin(E-M)}$ | Diff. log $g$ | $\pm tg$ | $\frac{E-M}{\sin(E-M)}$ | Diff. log $g$ | $\pm tg$   | $\frac{E-M}{\sin(E-M)}$ | Diff. log $g$ |        |            |    |
| $(E-M)$  |                         |               | $(E-M)$  |                         |               | $(E-M)$  |                         |               | $(E-M)$    |                         |               |        |            |    |
| 9.2000   | 0.001 7898              | +8            | 9.511    | 0.2050                  | 0.001 8308    | +8       | 9.511                   | 0.2100        | 0.001 8727 | +9                      | 9.510         | 0.2150 | 0.001 9150 | +9 |
| 01       | 7906                    | +8            | 511      | 51                      | 8316          | +8       | 511                     | 01            | 8736       | +9                      | 510           | 51     | 9165       | +9 |
| 02       | 7914                    | +8            | 511      | 52                      | 8325          | +8       | 511                     | 02            | 8744       | +9                      | 510           | 52     | 9174       | +8 |
| 03       | 7922                    | +8            | 511      | 53                      | 8333          | +8       | 511                     | 03            | 8753       | +8                      | 510           | 53     | 9182       | +9 |
| 04       | 7930                    | +8            | 511      | 54                      | 8341          | +8       | 511                     | 04            | 8761       | +9                      | 510           | 54     | 9191       | +9 |
| 9.2005   | 0.001 7938              | +8            | 9.511    | 0.2055                  | 0.001 8349    | +9       | 9.511                   | 0.2105        | 0.001 8770 | +8                      | 9.510         | 0.2155 | 0.001 9200 | +8 |
| 06       | 7949                    | +9            | 511      | 56                      | 8358          | +8       | 511                     | 06            | 8778       | +8                      | 510           | 56     | 9208       | +9 |
| 07       | 7955                    | +8            | 511      | 57                      | 8366          | +8       | 511                     | 07            | 8787       | +8                      | 510           | 57     | 9217       | +9 |
| 08       | 7963                    | +8            | 511      | 58                      | 8374          | +9       | 511                     | 08            | 8795       | +8                      | 510           | 58     | 9226       | +9 |
| 09       | 7971                    | +8            | 511      | 59                      | 8383          | +8       | 511                     | 09            | 8804       | +8                      | 510           | 59     | 9235       | +8 |
| 9.2010   | 0.001 7979              | +8            | 9.511    | 0.2060                  | 0.001 8391    | +8       | 9.511                   | 0.2110        | 0.001 8812 | +9                      | 9.510         | 0.2160 | 0.001 9243 | +9 |
| 11       | 7987                    | +8            | 511      | 61                      | 8399          | +9       | 511                     | 11            | 8821       | +8                      | 510           | 61     | 9252       | +9 |
| 12       | 7995                    | +8            | 511      | 62                      | 8408          | +8       | 511                     | 12            | 8829       | +9                      | 510           | 62     | 9261       | +8 |
| 13       | 8003                    | +9            | 511      | 63                      | 8416          | +8       | 511                     | 13            | 8838       | +9                      | 510           | 63     | 9269       | +9 |
| 14       | 8012                    | +8            | 511      | 64                      | 8424          | +9       | 511                     | 14            | 8847       | +8                      | 510           | 64     | 9278       | +9 |
| 9.2015   | 0.001 8020              | +8            | 9.511    | 0.2065                  | 0.001 8433    | +8       | 9.511                   | 0.2115        | 0.001 8855 | +9                      | 9.510         | 0.2165 | 0.001 9287 | +9 |
| 16       | 8028                    | +8            | 511      | 66                      | 8441          | +8       | 511                     | 16            | 8864       | +8                      | 510           | 66     | 9296       | +8 |
| 17       | 8036                    | +8            | 511      | 67                      | 8449          | +9       | 511                     | 17            | 8872       | +9                      | 510           | 67     | 9304       | +9 |
| 18       | 8044                    | +8            | 511      | 68                      | 8458          | +8       | 511                     | 18            | 8881       | +8                      | 510           | 68     | 9313       | +9 |
| 19       | 8052                    | +9            | 511      | 69                      | 8466          | +9       | 511                     | 19            | 8889       | +9                      | 510           | 69     | 9322       | +9 |
| 9.2020   | 0.001 8061              | +8            | 9.511    | 0.2070                  | 0.001 8475    | +8       | 9.511                   | 0.2120        | 0.001 8898 | +8                      | 9.510         | 0.2170 | 0.001 9331 | +8 |
| 21       | 8069                    | +8            | 511      | 71                      | 8483          | +8       | 511                     | 21            | 8906       | +8                      | 510           | 71     | 9339       | +9 |
| 22       | 8077                    | +8            | 511      | 72                      | 8491          | +9       | 511                     | 22            | 8915       | +9                      | 510           | 72     | 9348       | +9 |
| 23       | 8085                    | +8            | 511      | 73                      | 8500          | +8       | 511                     | 23            | 8924       | +8                      | 510           | 73     | 9357       | +9 |
| 24       | 8093                    | +9            | 511      | 74                      | 8508          | +8       | 511                     | 24            | 8932       | +9                      | 510           | 74     | 9366       | +8 |
| 9.2025   | 0.001 8102              | +8            | 9.511    | 0.2075                  | 0.001 8516    | +8       | 9.511                   | 0.2125        | 0.001 8941 | +8                      | 9.510         | 0.2175 | 0.001 9374 | +9 |
| 26       | 8110                    | +8            | 511      | 76                      | 8525          | +8       | 511                     | 26            | 8949       | +9                      | 510           | 76     | 9383       | +9 |
| 27       | 8118                    | +8            | 511      | 77                      | 8533          | +8       | 511                     | 27            | 8958       | +8                      | 510           | 77     | 9392       | +9 |
| 28       | 8126                    | +8            | 511      | 78                      | 8542          | +9       | 511                     | 28            | 8966       | +8                      | 510           | 78     | 9401       | +9 |
| 29       | 8134                    | +9            | 511      | 79                      | 8550          | +8       | 511                     | 29            | 8975       | +9                      | 510           | 79     | 9410       | +8 |
| 9.2030   | 0.001 8143              | +8            | 9.511    | 0.2080                  | 0.001 8558    | +9       | 9.511                   | 0.2130        | 0.001 8984 | +8                      | 9.510         | 0.2180 | 0.001 9418 | +9 |
| 31       | 8151                    | +8            | 511      | 81                      | 8567          | +8       | 511                     | 31            | 8992       | +9                      | 510           | 81     | 9427       | +9 |
| 32       | 8159                    | +8            | 511      | 82                      | 8575          | +9       | 511                     | 32            | 9001       | +8                      | 510           | 82     | 9436       | +9 |
| 33       | 8167                    | +9            | 511      | 83                      | 8584          | +8       | 511                     | 33            | 9009       | +9                      | 510           | 83     | 9445       | +9 |
| 34       | 8176                    | +8            | 511      | 84                      | 8592          | +9       | 511                     | 34            | 9018       | +9                      | 510           | 84     | 9454       | +8 |
| 9.2035   | 0.001 8184              | +8            | 9.511    | 0.2085                  | 0.001 8601    | +8       | 9.511                   | 0.2135        | 0.001 9027 | +8                      | 9.510         | 0.2185 | 0.001 9462 | +9 |
| 36       | 8192                    | +8            | 511      | 86                      | 8609          | +8       | 511                     | 36            | 9035       | +9                      | 510           | 86     | 9471       | +9 |
| 37       | 8200                    | +9            | 511      | 87                      | 8617          | +9       | 511                     | 37            | 9044       | +9                      | 510           | 87     | 9480       | +9 |
| 38       | 8209                    | +8            | 511      | 88                      | 8626          | +8       | 511                     | 38            | 9053       | +8                      | 510           | 88     | 9489       | +9 |
| 39       | 8217                    | +8            | 511      | 89                      | 8634          | +9       | 511                     | 39            | 9061       | +9                      | 510           | 89     | 9498       | +8 |
| 9.2040   | 0.001 8225              | +8            | 9.511    | 0.2090                  | 0.001 8643    | +8       | 9.511                   | 0.2140        | 0.001 9070 | +8                      | 9.510         | 0.2190 | 0.001 9506 | +9 |
| 41       | 8233                    | +9            | 511      | 91                      | 8651          | +9       | 511                     | 41            | 9078       | +9                      | 510           | 91     | 9515       | +9 |
| 42       | 8242                    | +9            | 511      | 92                      | 8660          | +8       | 511                     | 42            | 9087       | +9                      | 510           | 92     | 9524       | +9 |
| 43       | 8250                    | +9            | 511      | 93                      | 8668          | +9       | 511                     | 43            | 9096       | +8                      | 510           | 93     | 9533       | +9 |
| 44       | 8258                    | +8            | 511      | 94                      | 8677          | +8       | 510                     | 44            | 9104       | +9                      | 510           | 94     | 9542       | +9 |
| 9.2045   | 0.001 8266              | +9            | 9.511    | 0.2095                  | 0.001 8685    | +9       | 9.510                   | 0.2145        | 0.001 9113 | +9                      | 9.510         | 0.2195 | 0.001 9551 | +9 |
| 46       | 8275                    | +8            | 511      | 96                      | 8694          | +8       | 510                     | 46            | 9122       | +8                      | 510           | 96     | 9560       | +8 |
| 47       | 8283                    | +8            | 511      | 97                      | 8702          | +8       | 510                     | 47            | 9130       | +9                      | 510           | 97     | 9568       | +9 |
| 48       | 8291                    | +9            | 511      | 98                      | 8710          | +9       | 510                     | 48            | 9139       | +9                      | 510           | 98     | 9577       | +9 |
| 49       | 8300                    | +8            | 511      | 99                      | 8719          | +8       | 510                     | 49            | 9148       | +8                      | 510           | 99     | 9586       | +9 |
| 9.2050   | 0.001 8308              |               | 9.511    | 0.2100                  | 0.001 8727    |          | 9.510                   | 0.2150        | 0.001 9156 |                         | 9.510         | 0.2200 | 0.001 9595 |    |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff.  | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff.   | log g  | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff.  | log g   |        |      |     |        |
|----------------------|------------------------|-------|-------|----------------------|------------------------|--------|-------|----------------------|------------------------|---------|--------|----------------------|------------------------|--------|---------|--------|------|-----|--------|
| 9' 2200              | 0' 001                 | 9595  | +9    | 9' 510               | 9' 2250                | 0' 002 | 0043  | -9                   | 9' 510                 | 9' 2300 | 0' 002 | 0502                 | +9                     | 9' 509 | 9' 2350 | 0' 002 | 0971 | +9  | 9' 509 |
| 01                   | 9604                   | +9    | 510   | 51                   | 0052                   | +10    | 510   | 01                   | 0511                   | +10     | 509    | 51                   | 0980                   | +10    | 509     | 51     | 0980 | +10 | 509    |
| 02                   | 9613                   | +9    | 510   | 52                   | 0062                   | +9     | 510   | 02                   | 0521                   | +9      | 509    | 52                   | 0990                   | +9     | 509     | 52     | 0990 | +9  | 509    |
| 03                   | 9622                   | +8    | 510   | 53                   | 0071                   | +9     | 510   | 03                   | 0530                   | +9      | 509    | 53                   | 0999                   | +10    | 509     | 53     | 0999 | +10 | 509    |
| 04                   | 9630                   | +9    | 510   | 54                   | 0080                   | +9     | 510   | 04                   | 0539                   | +9      | 509    | 54                   | 1009                   | +9     | 509     | 54     | 1009 | +9  | 509    |
| 9' 2205              | 0' 001                 | 9639  | +9    | 9' 510               | 9' 2255                | 0' 002 | 0080  | +9                   | 9' 510                 | 9' 2305 | 0' 002 | 0548                 | +10                    | 9' 509 | 9' 2355 | 0' 002 | 1018 | +10 | 9' 509 |
| 06                   | 9648                   | +9    | 510   | 56                   | 0098                   | +9     | 510   | 06                   | 0558                   | +9      | 509    | 56                   | 1028                   | +9     | 509     | 56     | 1028 | +9  | 509    |
| 07                   | 9657                   | +9    | 510   | 57                   | 0107                   | +9     | 510   | 07                   | 0507                   | +9      | 509    | 57                   | 1037                   | +10    | 509     | 57     | 1037 | +10 | 509    |
| 08                   | 9666                   | +9    | 510   | 58                   | 0116                   | +9     | 510   | 08                   | 0570                   | +10     | 509    | 58                   | 1047                   | +9     | 509     | 58     | 1047 | +9  | 509    |
| 09                   | 9675                   | +9    | 510   | 59                   | 0125                   | +9     | 510   | 09                   | 0580                   | +10     | 509    | 59                   | 1050                   | +10    | 509     | 59     | 1050 | +10 | 509    |
| 9' 2210              | 0' 001                 | 9684  | +9    | 9' 510               | 9' 2260                | 0' 002 | 0134  | +9                   | 9' 510                 | 9' 2310 | 0' 002 | 0595                 | +9                     | 9' 509 | 9' 2360 | 0' 002 | 1060 | +9  | 9' 509 |
| 11                   | 9693                   | +9    | 510   | 61                   | 0143                   | +10    | 510   | 11                   | 0604                   | +10     | 509    | 61                   | 1075                   | +10    | 509     | 61     | 1075 | +10 | 509    |
| 12                   | 9702                   | +9    | 510   | 62                   | 0153                   | +9     | 510   | 12                   | 0614                   | +9      | 509    | 62                   | 1085                   | +9     | 509     | 62     | 1085 | +9  | 509    |
| 13                   | 9711                   | +9    | 510   | 63                   | 0162                   | +9     | 510   | 13                   | 0623                   | +9      | 509    | 63                   | 1094                   | +10    | 509     | 63     | 1094 | +10 | 509    |
| 14                   | 9720                   | +8    | 510   | 64                   | 0171                   | +9     | 509   | 14                   | 0632                   | +10     | 509    | 64                   | 1104                   | +10    | 509     | 64     | 1104 | +10 | 509    |
| 9' 2215              | 0' 001                 | 9728  | +9    | 9' 510               | 9' 2265                | 0' 002 | 0180  | +9                   | 9' 509                 | 9' 2315 | 0' 002 | 0642                 | +9                     | 9' 509 | 9' 2365 | 0' 002 | 1114 | +9  | 9' 509 |
| 16                   | 9737                   | +9    | 510   | 66                   | 0189                   | +9     | 509   | 16                   | 0651                   | +9      | 509    | 66                   | 1123                   | +10    | 509     | 66     | 1123 | +10 | 509    |
| 17                   | 9746                   | +9    | 510   | 67                   | 0198                   | +9     | 509   | 17                   | 0660                   | +10     | 509    | 67                   | 1133                   | +9     | 509     | 67     | 1133 | +9  | 509    |
| 18                   | 9755                   | +9    | 510   | 68                   | 0207                   | +9     | 509   | 18                   | 0670                   | +9      | 509    | 68                   | 1142                   | +10    | 509     | 68     | 1142 | +10 | 509    |
| 19                   | 9764                   | +9    | 510   | 69                   | 0216                   | +10    | 509   | 19                   | 0679                   | +9      | 509    | 69                   | 1152                   | +9     | 509     | 69     | 1152 | +9  | 509    |
| 9' 2220              | 0' 001                 | 9773  | +9    | 9' 510               | 9' 2270                | 0' 002 | 0226  | +9                   | 9' 509                 | 9' 2320 | 0' 002 | 0688                 | +10                    | 9' 509 | 9' 2370 | 0' 002 | 1161 | +10 | 9' 509 |
| 21                   | 9782                   | +9    | 510   | 71                   | 0235                   | +9     | 509   | 21                   | 0698                   | +9      | 509    | 71                   | 1171                   | +9     | 509     | 71     | 1171 | +9  | 509    |
| 22                   | 9791                   | +9    | 510   | 72                   | 0244                   | +9     | 509   | 22                   | 0707                   | +9      | 509    | 72                   | 1180                   | +10    | 509     | 72     | 1180 | +10 | 509    |
| 23                   | 9800                   | +9    | 510   | 73                   | 0253                   | +9     | 509   | 23                   | 0716                   | +10     | 509    | 73                   | 1190                   | +10    | 509     | 73     | 1190 | +10 | 509    |
| 24                   | 9809                   | +9    | 510   | 74                   | 0262                   | +9     | 509   | 24                   | 0726                   | +9      | 509    | 74                   | 1200                   | +9     | 509     | 74     | 1200 | +9  | 509    |
| 9' 2225              | 0' 001                 | 9818  | +9    | 9' 510               | 9' 2275                | 0' 002 | 0271  | +10                  | 9' 509                 | 9' 2325 | 0' 002 | 0735                 | +9                     | 9' 509 | 9' 2375 | 0' 002 | 1209 | +10 | 9' 509 |
| 26                   | 9827                   | +9    | 510   | 76                   | 0281                   | +9     | 509   | 26                   | 0744                   | +10     | 509    | 76                   | 1219                   | +9     | 509     | 76     | 1219 | +9  | 509    |
| 27                   | 9836                   | +9    | 510   | 77                   | 0290                   | +9     | 509   | 27                   | 0754                   | +9      | 509    | 77                   | 1228                   | +10    | 509     | 77     | 1228 | +10 | 509    |
| 28                   | 9845                   | +9    | 510   | 78                   | 0299                   | +9     | 509   | 28                   | 0763                   | +10     | 509    | 78                   | 1238                   | +10    | 509     | 78     | 1238 | +10 | 509    |
| 29                   | 9854                   | +9    | 510   | 79                   | 0308                   | +9     | 509   | 29                   | 0773                   | +9      | 509    | 79                   | 1248                   | +9     | 509     | 79     | 1248 | +9  | 509    |
| 9' 2230              | 0' 001                 | 9863  | +9    | 9' 510               | 9' 2280                | 0' 002 | 0317  | +10                  | 9' 509                 | 9' 2330 | 0' 002 | 0782                 | +9                     | 9' 509 | 9' 2380 | 0' 002 | 1257 | +10 | 9' 509 |
| 31                   | 9872                   | +9    | 510   | 81                   | 0327                   | +10    | 509   | 31                   | 0791                   | +10     | 509    | 81                   | 1267                   | +9     | 509     | 81     | 1267 | +9  | 509    |
| 32                   | 9881                   | +9    | 510   | 82                   | 0336                   | +9     | 509   | 32                   | 0801                   | +9      | 509    | 82                   | 1276                   | +10    | 509     | 82     | 1276 | +10 | 509    |
| 33                   | 9890                   | +9    | 510   | 83                   | 0345                   | +9     | 509   | 33                   | 0810                   | +10     | 509    | 83                   | 1286                   | +10    | 509     | 83     | 1286 | +10 | 509    |
| 34                   | 9899                   | +9    | 510   | 84                   | 0354                   | +9     | 509   | 34                   | 0820                   | +9      | 509    | 84                   | 1296                   | +9     | 509     | 84     | 1296 | +9  | 509    |
| 9' 2235              | 0' 001                 | 9908  | +9    | 9' 510               | 9' 2285                | 0' 002 | 0363  | +10                  | 9' 509                 | 9' 2335 | 0' 002 | 0829                 | +9                     | 9' 509 | 9' 2385 | 0' 002 | 1305 | +10 | 9' 509 |
| 36                   | 9917                   | +9    | 510   | 86                   | 0373                   | +9     | 509   | 36                   | 0838                   | +10     | 509    | 86                   | 1315                   | +10    | 509     | 86     | 1315 | +10 | 509    |
| 37                   | 9926                   | +9    | 510   | 87                   | 0382                   | +9     | 509   | 37                   | 0848                   | +9      | 509    | 87                   | 1325                   | +9     | 509     | 87     | 1325 | +9  | 509    |
| 38                   | 9935                   | +9    | 510   | 88                   | 0391                   | +9     | 509   | 38                   | 0857                   | +10     | 509    | 88                   | 1334                   | +10    | 509     | 88     | 1334 | +10 | 509    |
| 39                   | 9944                   | +9    | 510   | 89                   | 0400                   | +9     | 509   | 39                   | 0867                   | +9      | 509    | 89                   | 1344                   | +9     | 509     | 89     | 1344 | +9  | 509    |
| 9' 2240              | 0' 001                 | 9953  | +9    | 9' 510               | 9' 2290                | 0' 002 | 0409  | +10                  | 9' 509                 | 9' 2340 | 0' 002 | 0876                 | +10                    | 9' 509 | 9' 2390 | 0' 002 | 1353 | +10 | 9' 509 |
| 41                   | 9962                   | +9    | 510   | 91                   | 0419                   | +9     | 509   | 41                   | 0886                   | +9      | 509    | 91                   | 1363                   | +10    | 509     | 91     | 1363 | +10 | 509    |
| 42                   | 9971                   | +9    | 510   | 92                   | 0428                   | +9     | 509   | 42                   | 0895                   | +10     | 509    | 92                   | 1373                   | +9     | 509     | 92     | 1373 | +9  | 509    |
| 43                   | 9980                   | +9    | 510   | 93                   | 0437                   | +9     | 509   | 43                   | 0905                   | +9      | 509    | 93                   | 1382                   | +10    | 509     | 93     | 1382 | +10 | 509    |
| 44                   | 9989                   | +9    | 510   | 94                   | 0446                   | +10    | 509   | 44                   | 0914                   | +9      | 509    | 94                   | 1392                   | +10    | 509     | 94     | 1392 | +10 | 509    |
| 9' 2245              | 0' 001                 | 9998  | +9    | 9' 510               | 9' 2295                | 0' 002 | 0456  | +9                   | 9' 509                 | 9' 2345 | 0' 002 | 0923                 | +10                    | 9' 509 | 9' 2395 | 0' 002 | 1402 | +9  | 9' 509 |
| 46                   | 0007                   | +9    | 510   | 96                   | 0465                   | +9     | 509   | 46                   | 0933                   | +9      | 509    | 96                   | 1411                   | +10    | 509     | 96     | 1411 | +10 | 509    |
| 47                   | 0016                   | +9    | 510   | 97                   | 0474                   | +9     | 509   | 47                   | 0942                   | +10     | 509    | 97                   | 1421                   | +10    | 509     | 97     | 1421 | +10 | 509    |
| 48                   | 0025                   | +9    | 510   | 98                   | 0483                   | +10    | 509   | 48                   | 0952                   | +9      | 509    | 98                   | 1431                   | +9     | 509     | 98     | 1431 | +9  | 509    |
| 49                   | 0034                   | +9    | 510   | 99                   | 0493                   | +9     | 509   | 49                   | 0961                   | +10     | 509    | 99                   | 1440                   | +10    | 509     | 99     | 1440 | +10 | 509    |
| 9' 2250              | 0' 002                 | 0043  |       | 9' 510               | 9' 2300                | 0' 002 | 0502  |                      | 9' 509                 | 9' 2350 | 0' 002 | 0971                 |                        | 9' 509 | 9' 2400 | 0' 002 | 1450 |     | 9' 509 |

| log $\pm \text{tg}$<br>(E-M) |        |      | log $\frac{E-M}{\sin(E-M)}$ |        |         | Diff. log g |      |      | log $\pm \text{tg}$<br>(E-M) |         |        | log $\frac{E-M}{\sin(E-M)}$ |      |        | Diff. log g |        |      | log $\pm \text{tg}$<br>(E-M) |        |         | log $\frac{E-M}{\sin(E-M)}$ |        |      | Diff. log g |  |  |
|------------------------------|--------|------|-----------------------------|--------|---------|-------------|------|------|------------------------------|---------|--------|-----------------------------|------|--------|-------------|--------|------|------------------------------|--------|---------|-----------------------------|--------|------|-------------|--|--|
| 9' 2400                      | 0' 002 | 1450 | + 10                        | 9' 509 | 9' 2450 | 0' 002      | 1940 | + 10 | 9' 508                       | 9' 2500 | 0' 002 | 2441                        | + 11 | 9' 508 | 9' 2550     | 0' 002 | 2954 | + 10                         | 9' 508 | 9' 2600 | 0' 002                      | 3477   | + 10 | 9' 507      |  |  |
| 01                           |        | 1460 | + 10                        | 509    | 51      | 1950        | + 10 | 508  | 01                           |         | 2452   | + 10                        | 508  | 51     | 2964        | + 10   | 508  | 01                           |        | 3507    | + 10                        | 507    |      |             |  |  |
| 02                           |        | 1470 | + 10                        | 509    | 52      | 1960        | + 10 | 508  | 02                           |         | 2462   | + 10                        | 508  | 52     | 2974        | + 10   | 508  | 02                           |        | 3517    | + 10                        | 507    |      |             |  |  |
| 03                           |        | 1479 | + 10                        | 509    | 53      | 1970        | + 10 | 508  | 03                           |         | 2472   | + 10                        | 508  | 53     | 2985        | + 10   | 508  | 03                           |        | 3527    | + 10                        | 507    |      |             |  |  |
| 04                           |        | 1489 | + 10                        | 509    | 54      | 1980        | + 10 | 508  | 04                           |         | 2482   | + 10                        | 508  | 54     | 2995        | + 10   | 508  | 04                           |        | 3537    | + 10                        | 507    |      |             |  |  |
| 9' 2405                      | 0' 002 | 1499 | + 9                         | 9' 509 | 9' 2455 | 0' 002      | 1990 | + 10 | 9' 508                       | 9' 2505 | 0' 002 | 2492                        | + 10 | 9' 508 | 9' 2555     | 0' 002 | 3006 | + 10                         | 9' 508 | 9' 2605 | 0' 002                      | 3547   | + 10 | 9' 507      |  |  |
| 00                           |        | 1508 | + 10                        | 509    | 50      | 2000        | + 10 | 508  | 06                           |         | 2502   | + 10                        | 508  | 50     | 3016        | + 10   | 508  | 06                           |        | 3557    | + 10                        | 9' 507 |      |             |  |  |
| 07                           |        | 1518 | + 10                        | 509    | 57      | 2010        | + 10 | 508  | 07                           |         | 2512   | + 10                        | 508  | 57     | 3026        | + 10   | 508  | 07                           |        | 3567    | + 10                        | 9' 507 |      |             |  |  |
| 08                           |        | 1528 | + 10                        | 509    | 58      | 2020        | + 10 | 508  | 08                           |         | 2523   | + 10                        | 508  | 58     | 3037        | + 10   | 508  | 08                           |        | 3577    | + 10                        | 9' 507 |      |             |  |  |
| 09                           |        | 1538 | + 9                         | 509    | 59      | 2030        | + 10 | 508  | 09                           |         | 2533   | + 10                        | 508  | 59     | 3047        | + 10   | 508  | 09                           |        | 3587    | + 10                        | 9' 507 |      |             |  |  |
| 9' 2410                      | 0' 002 | 1547 | + 10                        | 9' 509 | 9' 2460 | 0' 002      | 2040 | + 10 | 9' 508                       | 9' 2510 | 0' 002 | 2543                        | + 10 | 9' 508 | 9' 2560     | 0' 002 | 3057 | + 10                         | 9' 508 | 9' 2610 | 0' 002                      | 3597   | + 10 | 9' 507      |  |  |
| 11                           |        | 1557 | + 10                        | 509    | 61      | 2050        | + 10 | 508  | 11                           |         | 2553   | + 10                        | 508  | 61     | 3068        | + 10   | 508  | 11                           |        | 3607    | + 10                        | 9' 507 |      |             |  |  |
| 12                           |        | 1567 | + 10                        | 509    | 62      | 2060        | + 10 | 508  | 12                           |         | 2563   | + 10                        | 508  | 62     | 3078        | + 10   | 508  | 12                           |        | 3617    | + 10                        | 9' 507 |      |             |  |  |
| 13                           |        | 1577 | + 10                        | 509    | 63      | 2070        | + 10 | 508  | 13                           |         | 2573   | + 10                        | 508  | 63     | 3089        | + 10   | 508  | 13                           |        | 3627    | + 10                        | 9' 507 |      |             |  |  |
| 14                           |        | 1580 | + 9                         | 509    | 64      | 2079        | + 9  | 508  | 14                           |         | 2584   | + 10                        | 508  | 64     | 3099        | + 10   | 508  | 14                           |        | 3637    | + 10                        | 9' 507 |      |             |  |  |
| 9' 2415                      | 0' 002 | 1590 | + 10                        | 9' 509 | 9' 2465 | 0' 002      | 2080 | + 10 | 9' 508                       | 9' 2515 | 0' 002 | 2594                        | + 10 | 9' 508 | 9' 2565     | 0' 002 | 3110 | + 10                         | 9' 508 | 9' 2615 | 0' 002                      | 3647   | + 10 | 9' 507      |  |  |
| 10                           |        | 1606 | + 10                        | 509    | 60      | 2099        | + 10 | 508  | 16                           |         | 2604   | + 10                        | 508  | 60     | 3120        | + 10   | 508  | 16                           |        | 3657    | + 10                        | 9' 507 |      |             |  |  |
| 17                           |        | 1616 | + 10                        | 509    | 67      | 2109        | + 10 | 508  | 17                           |         | 2614   | + 10                        | 508  | 67     | 3130        | + 10   | 508  | 17                           |        | 3667    | + 10                        | 9' 507 |      |             |  |  |
| 18                           |        | 1625 | + 9                         | 509    | 68      | 2119        | + 10 | 508  | 18                           |         | 2624   | + 10                        | 508  | 68     | 3141        | + 10   | 508  | 18                           |        | 3677    | + 10                        | 9' 507 |      |             |  |  |
| 19                           |        | 1635 | + 10                        | 509    | 69      | 2129        | + 10 | 508  | 19                           |         | 2635   | + 10                        | 508  | 69     | 3151        | + 10   | 508  | 19                           |        | 3687    | + 10                        | 9' 507 |      |             |  |  |
| 9' 2420                      | 0' 002 | 1645 | + 10                        | 9' 509 | 9' 2470 | 0' 002      | 2130 | + 10 | 9' 508                       | 9' 2520 | 0' 002 | 2645                        | + 10 | 9' 508 | 9' 2570     | 0' 002 | 3162 | + 10                         | 9' 508 | 9' 2620 | 0' 002                      | 3697   | + 10 | 9' 507      |  |  |
| 21                           |        | 1655 | + 9                         | 509    | 71      | 2149        | + 10 | 508  | 21                           |         | 2655   | + 10                        | 508  | 71     | 3172        | + 10   | 508  | 21                           |        | 3707    | + 10                        | 9' 507 |      |             |  |  |
| 22                           |        | 1664 | + 10                        | 509    | 72      | 2159        | + 10 | 508  | 22                           |         | 2665   | + 10                        | 508  | 72     | 3183        | + 10   | 508  | 22                           |        | 3717    | + 10                        | 9' 507 |      |             |  |  |
| 23                           |        | 1674 | + 10                        | 508    | 73      | 2169        | + 10 | 508  | 23                           |         | 2670   | + 10                        | 508  | 73     | 3193        | + 10   | 508  | 23                           |        | 3727    | + 10                        | 9' 507 |      |             |  |  |
| 24                           |        | 1684 | + 10                        | 508    | 74      | 2179        | + 10 | 508  | 24                           |         | 2686   | + 10                        | 508  | 74     | 3204        | + 10   | 508  | 24                           |        | 3737    | + 10                        | 9' 507 |      |             |  |  |
| 9' 2425                      | 0' 002 | 1694 | + 10                        | 9' 508 | 9' 2475 | 0' 002      | 2180 | + 10 | 9' 508                       | 9' 2525 | 0' 002 | 2696                        | + 10 | 9' 508 | 9' 2575     | 0' 002 | 3214 | + 10                         | 9' 508 | 9' 2625 | 0' 002                      | 3747   | + 10 | 9' 507      |  |  |
| 26                           |        | 1704 | + 9                         | 508    | 76      | 2199        | + 10 | 508  | 26                           |         | 2706   | + 11                        | 508  | 76     | 3225        | + 10   | 508  | 26                           |        | 3757    | + 10                        | 9' 507 |      |             |  |  |
| 27                           |        | 1713 | + 10                        | 508    | 77      | 2209        | + 10 | 508  | 27                           |         | 2717   | + 10                        | 508  | 77     | 3235        | + 10   | 508  | 27                           |        | 3767    | + 10                        | 9' 507 |      |             |  |  |
| 28                           |        | 1723 | + 10                        | 508    | 78      | 2220        | + 10 | 508  | 28                           |         | 2727   | + 10                        | 508  | 78     | 3246        | + 10   | 508  | 28                           |        | 3777    | + 10                        | 9' 507 |      |             |  |  |
| 29                           |        | 1733 | + 10                        | 508    | 79      | 2230        | + 10 | 508  | 29                           |         | 2737   | + 10                        | 508  | 79     | 3256        | + 10   | 508  | 29                           |        | 3787    | + 10                        | 9' 507 |      |             |  |  |
| 9' 2430                      | 0' 002 | 1743 | + 10                        | 9' 508 | 9' 2480 | 0' 002      | 2240 | + 10 | 9' 508                       | 9' 2530 | 0' 002 | 2747                        | + 11 | 9' 508 | 9' 2580     | 0' 002 | 3267 | + 10                         | 9' 508 | 9' 2630 | 0' 002                      | 3797   | + 10 | 9' 507      |  |  |
| 31                           |        | 1753 | + 10                        | 508    | 81      | 2250        | + 10 | 508  | 31                           |         | 2758   | + 10                        | 508  | 81     | 3277        | + 10   | 508  | 31                           |        | 3807    | + 10                        | 9' 507 |      |             |  |  |
| 32                           |        | 1763 | + 9                         | 508    | 82      | 2260        | + 10 | 508  | 32                           |         | 2768   | + 10                        | 508  | 82     | 3288        | + 10   | 508  | 32                           |        | 3817    | + 10                        | 9' 507 |      |             |  |  |
| 33                           |        | 1772 | + 10                        | 508    | 83      | 2270        | + 10 | 508  | 33                           |         | 2778   | + 10                        | 508  | 83     | 3298        | + 10   | 508  | 33                           |        | 3827    | + 10                        | 9' 507 |      |             |  |  |
| 34                           |        | 1782 | + 10                        | 508    | 84      | 2280        | + 10 | 508  | 34                           |         | 2789   | + 10                        | 508  | 84     | 3309        | + 10   | 508  | 34                           |        | 3837    | + 10                        | 9' 507 |      |             |  |  |
| 9' 2435                      | 0' 002 | 1792 | + 10                        | 9' 508 | 9' 2485 | 0' 002      | 2290 | + 10 | 9' 508                       | 9' 2535 | 0' 002 | 2799                        | + 10 | 9' 508 | 9' 2585     | 0' 002 | 3319 | + 10                         | 9' 508 | 9' 2635 | 0' 002                      | 3847   | + 10 | 9' 507      |  |  |
| 36                           |        | 1802 | + 10                        | 508    | 86      | 2300        | + 10 | 508  | 36                           |         | 2809   | + 10                        | 508  | 86     | 3330        | + 10   | 508  | 36                           |        | 3857    | + 10                        | 9' 507 |      |             |  |  |
| 37                           |        | 1812 | + 10                        | 508    | 87      | 2310        | + 10 | 508  | 37                           |         | 2819   | + 10                        | 508  | 87     | 3340        | + 10   | 508  | 37                           |        | 3867    | + 10                        | 9' 507 |      |             |  |  |
| 38                           |        | 1822 | + 10                        | 508    | 88      | 2320        | + 10 | 508  | 38                           |         | 2830   | + 10                        | 508  | 88     | 3351        | + 10   | 508  | 38                           |        | 3877    | + 10                        | 9' 507 |      |             |  |  |
| 39                           |        | 1832 | + 9                         | 508    | 89      | 2330        | + 10 | 508  | 39                           |         | 2840   | + 10                        | 508  | 89     | 3361        | + 10   | 508  | 39                           |        | 3887    | + 10                        | 9' 507 |      |             |  |  |
| 9' 2440                      | 0' 002 | 1841 | + 10                        | 9' 508 | 9' 2490 | 0' 002      | 2340 | + 10 | 9' 508                       | 9' 2540 | 0' 002 | 2850                        | + 10 | 9' 508 | 9' 2590     | 0' 002 | 3372 | + 10                         | 9' 508 | 9' 2640 | 0' 002                      | 3897   | + 10 | 9' 507      |  |  |
| 41                           |        | 1851 | + 10                        | 508    | 91      | 2350        | + 10 | 508  | 41                           |         | 2861   | + 10                        | 508  | 91     | 3382        | + 10   | 508  | 41                           |        | 3907    | + 10                        | 9' 507 |      |             |  |  |
| 42                           |        | 1861 | + 10                        | 508    | 92      | 2360        | + 10 | 508  | 42                           |         | 2871   | + 10                        | 508  | 92     | 3393        | + 10   | 508  | 42                           |        | 3917    | + 10                        | 9' 507 |      |             |  |  |
| 43                           |        | 1871 | + 10                        | 508    | 93      | 2371        | + 10 | 508  | 43                           |         | 2881   | + 10                        | 508  | 93     | 3403        | + 10   | 508  | 43                           |        | 3927    | + 10                        | 9' 507 |      |             |  |  |
| 44                           |        | 1881 | + 10                        | 508    | 94      | 2381        | + 10 | 508  | 44                           |         | 2892   | + 10                        | 508  | 94     | 3414        | + 10   | 508  | 44                           |        | 3937    | + 10                        | 9' 507 |      |             |  |  |
| 9' 2445                      | 0' 002 | 1891 | + 10                        | 9' 508 | 9' 2495 | 0' 002      | 2391 | + 10 | 9' 508                       | 9' 2545 | 0' 002 | 2902                        | + 10 | 9' 508 | 9' 2595     | 0' 002 | 3425 | + 10                         | 9' 508 | 9' 2645 | 0' 002                      | 3947   | + 10 | 9' 507      |  |  |
| 46                           |        | 1901 | + 10                        | 508    | 96      | 2401        | + 10 | 508  | 46                           |         | 2912   | + 10                        | 508  | 96     | 3435        | + 10   | 508  | 46                           |        | 3957    | + 10                        | 9' 507 |      |             |  |  |
| 47                           |        | 1911 | + 9                         | 508    | 97      | 2411        | + 10 | 508  | 47                           |         | 2923   | + 10                        | 508  | 97     | 3446        | + 10   | 508  | 47                           |        | 3967    | + 10                        | 9' 507 |      |             |  |  |
| 48                           |        | 1920 | + 10                        | 508    | 98      | 2421        | + 10 | 508  | 48                           |         | 2933   | + 10                        | 508  | 98     | 3456        | + 10   | 508  | 48                           |        | 3977    | + 10                        | 9' 507 |      |             |  |  |
| 49                           |        | 1930 | + 10                        | 508    | 99      | 2431        | + 10 | 508  | 49                           |         | 2943   | + 10                        | 508  | 99     | 3467        | + 10   | 508  | 49                           |        | 3987    | + 10                        | 9' 507 |      |             |  |  |
| 9' 2450                      | 0' 002 | 1940 |                             | 9' 508 | 9' 2500 | 0' 002      | 2441 |      | 9' 508                       | 9' 2550 | 0' 002 | 2954                        |      | 9' 508 | 9' 2600     | 0' 002 | 3477 |                              | 9' 507 |         |                             |        |      |             |  |  |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>E-M | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>E-M | log<br>E-M<br>sin(E-M) | Diff. | log g |
|----------------------|------------------------|-------|-------|--------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|--------------------|------------------------|-------|-------|
| 9'2000               | 0'002 3477             | +11   | 9'507 | 9'2650             | 0'002 4013             | +11   | 9'507 | 9'2700               | 0'002 4500             | +11   | 9'507 | 9'2750             | 0'002 5120             | +11   | 9'506 |
| 01                   | 3488                   | +11   | 507   | 51                 | 4024                   | +11   | 507   | 01                   | 4571                   | +11   | 507   | 51                 | 5131                   | +12   | 506   |
| 02                   | 3499                   | +10   | 507   | 52                 | 4035                   | +10   | 507   | 02                   | 4582                   | +12   | 507   | 52                 | 5143                   | +11   | 506   |
| 03                   | 3509                   | +11   | 507   | 53                 | 4045                   | +11   | 507   | 03                   | 4594                   | +11   | 507   | 53                 | 5154                   | +11   | 506   |
| 04                   | 3520                   | +10   | 507   | 54                 | 4050                   | +11   | 507   | 04                   | 4605                   | +11   | 507   | 54                 | 5165                   | +12   | 506   |
| 9'2605               | 0'002 3530             | +11   | 9'507 | 9'2655             | 0'002 4067             | +11   | 9'507 | 9'2705               | 0'002 4616             | +11   | 9'507 | 9'2755             | 0'002 5177             | +11   | 9'506 |
| 06                   | 3541                   | +11   | 507   | 50                 | 4078                   | +11   | 507   | 06                   | 4627                   | +11   | 507   | 50                 | 5188                   | +11   | 506   |
| 07                   | 3552                   | +10   | 507   | 57                 | 4089                   | +11   | 507   | 07                   | 4638                   | +11   | 507   | 57                 | 5199                   | +12   | 506   |
| 08                   | 3562                   | +11   | 507   | 58                 | 4100                   | +11   | 507   | 08                   | 4649                   | +11   | 507   | 58                 | 5211                   | +11   | 506   |
| 09                   | 3573                   | +11   | 507   | 59                 | 4111                   | +10   | 507   | 09                   | 4660                   | +11   | 507   | 59                 | 5222                   | +11   | 506   |
| 9'2610               | 0'002 3584             | +10   | 9'507 | 9'2660             | 0'002 4121             | +11   | 9'507 | 9'2710               | 0'002 4671             | +11   | 9'507 | 9'2760             | 0'002 5233             | +12   | 9'506 |
| 11                   | 3594                   | +10   | 507   | 61                 | 4132                   | +11   | 507   | 11                   | 4682                   | +11   | 506   | 61                 | 5245                   | +11   | 506   |
| 12                   | 3605                   | +11   | 507   | 62                 | 4143                   | +11   | 507   | 12                   | 4693                   | +11   | 506   | 62                 | 5256                   | +11   | 506   |
| 13                   | 3616                   | +10   | 507   | 63                 | 4154                   | +11   | 507   | 13                   | 4705                   | +11   | 506   | 63                 | 5267                   | +12   | 506   |
| 14                   | 3626                   | +11   | 507   | 64                 | 4165                   | +11   | 507   | 14                   | 4716                   | +11   | 506   | 64                 | 5279                   | +11   | 506   |
| 9'2015               | 0'002 3637             | +10   | 9'507 | 9'2665             | 0'002 4170             | +11   | 9'507 | 9'2715               | 0'002 4727             | +11   | 9'506 | 9'2765             | 0'002 5290             | +12   | 9'506 |
| 16                   | 3647                   | +11   | 507   | 66                 | 4187                   | +11   | 507   | 16                   | 4738                   | +11   | 506   | 66                 | 5302                   | +11   | 506   |
| 17                   | 3658                   | +11   | 507   | 67                 | 4198                   | +11   | 507   | 17                   | 4749                   | +11   | 506   | 67                 | 5313                   | +11   | 506   |
| 18                   | 3669                   | +11   | 507   | 68                 | 4209                   | +10   | 507   | 18                   | 4760                   | +11   | 506   | 68                 | 5324                   | +12   | 506   |
| 19                   | 3680                   | +10   | 507   | 69                 | 4219                   | +11   | 507   | 19                   | 4771                   | +12   | 506   | 69                 | 5336                   | +11   | 506   |
| 9'2620               | 0'002 3690             | +11   | 9'507 | 9'2670             | 0'002 4230             | +11   | 9'507 | 9'2720               | 0'002 4783             | +11   | 9'506 | 9'2770             | 0'002 5347             | +12   | 9'506 |
| 21                   | 3701                   | +11   | 507   | 71                 | 4241                   | +11   | 507   | 21                   | 4794                   | +11   | 506   | 71                 | 5359                   | +11   | 506   |
| 22                   | 3712                   | +10   | 507   | 72                 | 4252                   | +11   | 507   | 22                   | 4805                   | +11   | 506   | 72                 | 5370                   | +11   | 506   |
| 23                   | 3722                   | +11   | 507   | 73                 | 4263                   | +11   | 507   | 23                   | 4816                   | +11   | 506   | 73                 | 5381                   | +12   | 506   |
| 24                   | 3733                   | +11   | 507   | 74                 | 4274                   | +11   | 507   | 24                   | 4827                   | +12   | 506   | 74                 | 5393                   | +11   | 506   |
| 9'2025               | 0'002 3744             | +10   | 9'507 | 9'2675             | 0'002 4285             | +11   | 9'507 | 9'2725               | 0'002 4839             | +11   | 9'506 | 9'2775             | 0'002 5404             | +12   | 9'506 |
| 26                   | 3754                   | +11   | 507   | 76                 | 4296                   | +11   | 507   | 26                   | 4850                   | +11   | 506   | 76                 | 5416                   | +11   | 506   |
| 27                   | 3765                   | +11   | 507   | 77                 | 4307                   | +11   | 507   | 27                   | 4861                   | +11   | 506   | 77                 | 5427                   | +12   | 506   |
| 28                   | 3776                   | +11   | 507   | 78                 | 4318                   | +11   | 507   | 28                   | 4872                   | +11   | 506   | 78                 | 5439                   | +11   | 506   |
| 29                   | 3787                   | +10   | 507   | 79                 | 4329                   | +11   | 507   | 29                   | 4883                   | +12   | 506   | 79                 | 5450                   | +12   | 506   |
| 9'2030               | 0'002 3797             | +11   | 9'507 | 9'2680             | 0'002 4340             | +11   | 9'507 | 9'2730               | 0'002 4895             | +11   | 9'506 | 9'2780             | 0'002 5462             | +11   | 9'506 |
| 31                   | 3808                   | +11   | 507   | 81                 | 4351                   | +11   | 507   | 31                   | 4906                   | +11   | 506   | 81                 | 5473                   | +12   | 506   |
| 32                   | 3819                   | +10   | 507   | 82                 | 4362                   | +11   | 507   | 32                   | 4917                   | +11   | 506   | 82                 | 5485                   | +11   | 506   |
| 33                   | 3829                   | +11   | 507   | 83                 | 4373                   | +11   | 507   | 33                   | 4928                   | +11   | 506   | 83                 | 5496                   | +11   | 506   |
| 34                   | 3840                   | +11   | 507   | 84                 | 4384                   | +11   | 507   | 34                   | 4939                   | +12   | 506   | 84                 | 5507                   | +12   | 506   |
| 9'2635               | 0'002 3851             | +11   | 9'507 | 9'2685             | 0'002 4395             | +11   | 9'507 | 9'2735               | 0'002 4951             | +11   | 9'506 | 9'2785             | 0'002 5519             | +11   | 9'506 |
| 36                   | 3862                   | +11   | 507   | 86                 | 4406                   | +11   | 507   | 36                   | 4962                   | +11   | 506   | 86                 | 5530                   | +12   | 506   |
| 37                   | 3873                   | +10   | 507   | 87                 | 4417                   | +11   | 507   | 37                   | 4973                   | +11   | 506   | 87                 | 5542                   | +11   | 506   |
| 38                   | 3883                   | +11   | 507   | 88                 | 4428                   | +11   | 507   | 38                   | 4984                   | +12   | 506   | 88                 | 5553                   | +12   | 506   |
| 39                   | 3894                   | +11   | 507   | 89                 | 4439                   | +11   | 507   | 39                   | 4995                   | +11   | 506   | 89                 | 5565                   | +12   | 506   |
| 9'2040               | 0'002 3905             | +11   | 9'507 | 9'2690             | 0'002 4450             | +11   | 9'507 | 9'2740               | 0'002 5007             | +11   | 9'506 | 9'2790             | 0'002 5577             | +11   | 9'506 |
| 41                   | 3916                   | +10   | 507   | 91                 | 4461                   | +11   | 507   | 41                   | 5018                   | +12   | 506   | 91                 | 5588                   | +12   | 506   |
| 42                   | 3926                   | +11   | 507   | 92                 | 4472                   | +11   | 507   | 42                   | 5030                   | +11   | 506   | 92                 | 5600                   | +11   | 506   |
| 43                   | 3937                   | +11   | 507   | 93                 | 4483                   | +11   | 507   | 43                   | 5041                   | +11   | 506   | 93                 | 5611                   | +12   | 506   |
| 44                   | 3948                   | +11   | 507   | 94                 | 4494                   | +11   | 507   | 44                   | 5052                   | +11   | 506   | 94                 | 5623                   | +11   | 506   |
| 9'2045               | 0'002 3959             | +11   | 9'507 | 9'2695             | 0'002 4505             | +11   | 9'507 | 9'2745               | 0'002 5063             | +12   | 9'506 | 9'2795             | 0'002 5634             | +12   | 9'506 |
| 46                   | 3970                   | +10   | 507   | 96                 | 4516                   | +11   | 507   | 46                   | 5075                   | +11   | 506   | 96                 | 5646                   | +11   | 506   |
| 47                   | 3980                   | +11   | 507   | 97                 | 4527                   | +11   | 507   | 47                   | 5086                   | +11   | 506   | 97                 | 5657                   | +12   | 506   |
| 48                   | 3991                   | +11   | 507   | 98                 | 4538                   | +11   | 507   | 48                   | 5097                   | +12   | 506   | 98                 | 5669                   | +11   | 506   |
| 49                   | 4002                   | +11   | 507   | 99                 | 4549                   | +11   | 507   | 49                   | 5109                   | +11   | 506   | 99                 | 5680                   | +12   | 506   |
| 9'2650               | 0'002 4013             |       | 9'507 | 9'2700             | 0'002 4560             |       | 9'507 | 9'2750               | 0'002 5120             |       | 9'506 | 9'2800             | 0'002 5692             |       | 9'506 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g |
|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|
| 9.2800               | 0.002 5692              | +12   | 9.500 | 9.2850               | 0.002 6277              | +12   | 9.505 | 9.2900               | 0.002 6875              | +12   | 9.505 | 9.2950               | 0.002 7486              | +12   | 9.505 |
| 01                   | 5704                    | +11   | 500   | 51                   | 6289                    | +11   | 505   | 01                   | 6887                    | +12   | 505   | 51                   | 7498                    | +12   | 505   |
| 02                   | 5715                    | +12   | 500   | 52                   | 6300                    | +12   | 505   | 02                   | 6899                    | +12   | 505   | 52                   | 7510                    | +13   | 505   |
| 03                   | 5727                    | +11   | 500   | 53                   | 6312                    | +12   | 505   | 03                   | 6911                    | +12   | 505   | 53                   | 7523                    | +12   | 505   |
| 04                   | 5738                    | +12   | 500   | 54                   | 6324                    | +12   | 505   | 04                   | 6923                    | +12   | 505   | 54                   | 7535                    | +12   | 505   |
| 9.2805               | 0.002 5750              | +11   | 9.506 | 9.2855               | 0.002 6330              | +12   | 9.505 | 9.2905               | 0.002 6935              | +12   | 9.505 | 9.2955               | 0.002 7547              | +13   | 9.505 |
| 06                   | 5761                    | +12   | 506   | 56                   | 6348                    | +12   | 505   | 06                   | 6947                    | +12   | 505   | 56                   | 7560                    | +12   | 505   |
| 07                   | 5773                    | +12   | 506   | 57                   | 6360                    | +11   | 505   | 07                   | 6959                    | +12   | 505   | 57                   | 7572                    | +13   | 505   |
| 08                   | 5785                    | +11   | 506   | 58                   | 6371                    | +12   | 505   | 08                   | 6971                    | +12   | 505   | 58                   | 7585                    | +12   | 505   |
| 09                   | 5796                    | +12   | 506   | 59                   | 6383                    | +12   | 505   | 09                   | 6984                    | +12   | 505   | 59                   | 7597                    | +12   | 505   |
| 9.2810               | 0.002 5808              | +11   | 9.500 | 9.2860               | 0.002 6395              | +12   | 9.505 | 9.2910               | 0.002 7006              | +12   | 9.505 | 9.2960               | 0.002 7609              | +13   | 9.505 |
| 11                   | 5819                    | +12   | 506   | 61                   | 6407                    | +12   | 505   | 11                   | 7008                    | +12   | 505   | 61                   | 7622                    | +12   | 505   |
| 12                   | 5831                    | +12   | 506   | 62                   | 6419                    | +12   | 505   | 12                   | 7020                    | +12   | 505   | 62                   | 7634                    | +13   | 505   |
| 13                   | 5843                    | +11   | 506   | 63                   | 6431                    | +12   | 505   | 13                   | 7032                    | +12   | 505   | 63                   | 7647                    | +12   | 505   |
| 14                   | 5854                    | +12   | 506   | 64                   | 6443                    | +12   | 505   | 14                   | 7044                    | +12   | 505   | 64                   | 7659                    | +13   | 504   |
| 9.2815               | 0.002 5866              | +12   | 9.506 | 9.2865               | 0.002 6455              | +12   | 9.505 | 9.2915               | 0.002 7056              | +13   | 9.505 | 9.2965               | 0.002 7672              | +12   | 9.504 |
| 16                   | 5878                    | +11   | 506   | 66                   | 6467                    | +12   | 505   | 16                   | 7069                    | +12   | 505   | 66                   | 7684                    | +12   | 504   |
| 17                   | 5889                    | +12   | 506   | 67                   | 6478                    | +11   | 505   | 17                   | 7081                    | +12   | 505   | 67                   | 7696                    | +13   | 504   |
| 18                   | 5901                    | +12   | 506   | 68                   | 6490                    | +12   | 505   | 18                   | 7093                    | +12   | 505   | 68                   | 7709                    | +12   | 504   |
| 19                   | 5913                    | +11   | 506   | 69                   | 6502                    | +12   | 505   | 19                   | 7105                    | +12   | 505   | 69                   | 7721                    | +13   | 504   |
| 9.2820               | 0.002 5924              | +12   | 9.506 | 9.2870               | 0.002 6514              | +12   | 9.505 | 9.2920               | 0.002 7117              | +13   | 9.505 | 9.2970               | 0.002 7734              | +12   | 9.504 |
| 21                   | 5936                    | +12   | 506   | 71                   | 6526                    | +12   | 505   | 21                   | 7130                    | +12   | 505   | 71                   | 7746                    | +13   | 504   |
| 22                   | 5948                    | +11   | 506   | 72                   | 6538                    | +12   | 505   | 22                   | 7142                    | +12   | 505   | 72                   | 7759                    | +12   | 504   |
| 23                   | 5959                    | +12   | 506   | 73                   | 6550                    | +12   | 505   | 23                   | 7154                    | +12   | 505   | 73                   | 7771                    | +13   | 504   |
| 24                   | 5971                    | +12   | 506   | 74                   | 6562                    | +12   | 505   | 24                   | 7166                    | +12   | 505   | 74                   | 7784                    | +12   | 504   |
| 9.2825               | 0.002 5983              | +11   | 9.506 | 9.2875               | 0.002 6574              | +12   | 9.505 | 9.2925               | 0.002 7178              | +13   | 9.505 | 9.2975               | 0.002 7796              | +13   | 9.504 |
| 26                   | 5994                    | +12   | 506   | 76                   | 6586                    | +12   | 505   | 26                   | 7191                    | +12   | 505   | 76                   | 7809                    | +12   | 504   |
| 27                   | 6006                    | +12   | 506   | 77                   | 6598                    | +12   | 505   | 27                   | 7203                    | +12   | 505   | 77                   | 7821                    | +13   | 504   |
| 28                   | 6018                    | +12   | 506   | 78                   | 6610                    | +12   | 505   | 28                   | 7215                    | +12   | 505   | 78                   | 7834                    | +12   | 504   |
| 29                   | 6030                    | +11   | 506   | 79                   | 6622                    | +12   | 505   | 29                   | 7227                    | +13   | 505   | 79                   | 7846                    | +13   | 504   |
| 9.2830               | 0.002 6041              | +12   | 9.506 | 9.2880               | 0.002 6634              | +12   | 9.505 | 9.2930               | 0.002 7240              | +12   | 9.505 | 9.2980               | 0.002 7859              | +12   | 9.504 |
| 31                   | 6053                    | +12   | 506   | 81                   | 6646                    | +12   | 505   | 31                   | 7252                    | +12   | 505   | 81                   | 7871                    | +13   | 504   |
| 32                   | 6065                    | +11   | 506   | 82                   | 6658                    | +12   | 505   | 32                   | 7264                    | +12   | 505   | 82                   | 7884                    | +12   | 504   |
| 33                   | 6076                    | +12   | 506   | 83                   | 6670                    | +12   | 505   | 33                   | 7276                    | +13   | 505   | 83                   | 7896                    | +13   | 504   |
| 34                   | 6088                    | +12   | 506   | 84                   | 6682                    | +12   | 505   | 34                   | 7289                    | +12   | 505   | 84                   | 7909                    | +12   | 504   |
| 9.2835               | 0.002 6100              | +12   | 9.506 | 9.2885               | 0.002 6694              | +12   | 9.505 | 9.2935               | 0.002 7301              | +12   | 9.505 | 9.2985               | 0.002 7921              | +13   | 9.504 |
| 36                   | 6112                    | +11   | 506   | 86                   | 6706                    | +12   | 505   | 36                   | 7313                    | +12   | 505   | 86                   | 7934                    | +12   | 504   |
| 37                   | 6123                    | +12   | 506   | 87                   | 6718                    | +12   | 505   | 37                   | 7325                    | +13   | 505   | 87                   | 7946                    | +13   | 504   |
| 38                   | 6135                    | +12   | 506   | 88                   | 6730                    | +12   | 505   | 38                   | 7338                    | +12   | 505   | 88                   | 7959                    | +13   | 504   |
| 39                   | 6147                    | +12   | 506   | 89                   | 6742                    | +12   | 505   | 39                   | 7350                    | +12   | 505   | 89                   | 7972                    | +12   | 504   |
| 9.2840               | 0.002 6159              | +12   | 9.506 | 9.2890               | 0.002 6754              | +12   | 9.505 | 9.2940               | 0.002 7362              | +13   | 9.505 | 9.2990               | 0.002 7984              | +13   | 9.504 |
| 41                   | 6171                    | +11   | 505   | 91                   | 6766                    | +12   | 505   | 41                   | 7375                    | +12   | 505   | 91                   | 7997                    | +12   | 504   |
| 42                   | 6182                    | +12   | 505   | 92                   | 6778                    | +12   | 505   | 42                   | 7387                    | +12   | 505   | 92                   | 8009                    | +13   | 504   |
| 43                   | 6194                    | +12   | 505   | 93                   | 6790                    | +12   | 505   | 43                   | 7399                    | +12   | 505   | 93                   | 8022                    | +12   | 504   |
| 44                   | 6206                    | +12   | 505   | 94                   | 6802                    | +12   | 505   | 44                   | 7412                    | +13   | 505   | 94                   | 8034                    | +13   | 504   |
| 9.2845               | 0.002 6218              | +11   | 9.505 | 9.2895               | 0.002 6814              | +12   | 9.505 | 9.2945               | 0.002 7424              | +12   | 9.505 | 9.2995               | 0.002 8047              | +13   | 9.504 |
| 46                   | 6229                    | +12   | 505   | 96                   | 6826                    | +12   | 505   | 46                   | 7436                    | +13   | 505   | 96                   | 8060                    | +12   | 504   |
| 47                   | 6241                    | +12   | 505   | 97                   | 6838                    | +12   | 505   | 47                   | 7449                    | +12   | 505   | 97                   | 8072                    | +13   | 504   |
| 48                   | 6253                    | +12   | 505   | 98                   | 6850                    | +12   | 505   | 48                   | 7461                    | +12   | 505   | 98                   | 8085                    | +13   | 504   |
| 49                   | 6265                    | +12   | 505   | 99                   | 6862                    | +13   | 505   | 49                   | 7473                    | +13   | 505   | 99                   | 8098                    | +12   | 504   |
| 9.2850               | 0.002 6277              |       | 9.505 | 9.2900               | 0.002 6875              |       | 9.505 | 9.2950               | 0.002 7486              |       | 9.505 | 9.3000               | 0.002 8110              |       | 9.504 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|
| 9'3000               | 0'002 8110             | +13   | 9'504 | 9'3050               | 0'002 8749             | +13   | 9'504 | 9'3100               | 0'002 9401             | +13   | 9'503 | 9'3150               | 0'003 0008             | +14   | 9'503 |
| 01                   | 8123                   | +12   | 504   | 51                   | 8762                   | +12   | 504   | 01                   | 9414                   | +14   | 503   | 51                   | 0082                   | +13   | 503   |
| 02                   | 8135                   | +13   | 504   | 52                   | 8774                   | +13   | 504   | 02                   | 9428                   | +13   | 503   | 52                   | 0095                   | +14   | 503   |
| 03                   | 8148                   | +13   | 504   | 53                   | 8787                   | +13   | 504   | 03                   | 9441                   | +13   | 503   | 53                   | 0109                   | +13   | 503   |
| 04                   | 8161                   | +13   | 504   | 54                   | 8800                   | +13   | 504   | 04                   | 9454                   | +13   | 503   | 54                   | 0122                   | +13   | 503   |
| 9'3005               | 0'002 8173             | +13   | 9'504 | 9'3055               | 0'002 8813             | +13   | 9'504 | 9'3105               | 0'002 9407             | +13   | 9'503 | 9'3155               | 0'003 0130             | +13   | 9'503 |
| 06                   | 8186                   | +13   | 504   | 56                   | 8826                   | +13   | 504   | 06                   | 9480                   | +14   | 503   | 56                   | 0149                   | +14   | 503   |
| 07                   | 8199                   | +12   | 504   | 57                   | 8839                   | +12   | 504   | 07                   | 9494                   | +13   | 503   | 57                   | 0163                   | +13   | 503   |
| 08                   | 8211                   | +13   | 504   | 58                   | 8852                   | +13   | 504   | 08                   | 9507                   | +13   | 503   | 58                   | 0176                   | +14   | 503   |
| 09                   | 8224                   | +13   | 504   | 59                   | 8865                   | +13   | 504   | 09                   | 9520                   | +13   | 503   | 59                   | 0190                   | +13   | 503   |
| 9'3010               | 0'002 8237             | +12   | 9'504 | 9'3060               | 0'002 8878             | +13   | 9'504 | 9'3110               | 0'002 9533             | +14   | 9'503 | 9'3160               | 0'003 0203             | +14   | 9'503 |
| 11                   | 8249                   | +13   | 504   | 61                   | 8891                   | +13   | 504   | 11                   | 9547                   | +14   | 503   | 61                   | 0217                   | +13   | 503   |
| 12                   | 8262                   | +13   | 504   | 62                   | 8904                   | +13   | 504   | 12                   | 9560                   | +13   | 503   | 62                   | 0230                   | +14   | 503   |
| 13                   | 8275                   | +13   | 504   | 63                   | 8917                   | +13   | 504   | 13                   | 9573                   | +13   | 503   | 63                   | 0244                   | +14   | 503   |
| 14                   | 8288                   | +12   | 504   | 64                   | 8930                   | +12   | 504   | 14                   | 9586                   | +13   | 503   | 64                   | 0258                   | +13   | 503   |
| 9'3015               | 0'002 8300             | +13   | 9'504 | 9'3065               | 0'002 8943             | +13   | 9'504 | 9'3115               | 0'002 9600             | +13   | 9'503 | 9'3165               | 0'003 0271             | +14   | 9'503 |
| 16                   | 8313                   | +13   | 504   | 66                   | 8956                   | +13   | 504   | 16                   | 9613                   | +13   | 503   | 66                   | 0285                   | +13   | 503   |
| 17                   | 8326                   | +12   | 504   | 67                   | 8969                   | +12   | 504   | 17                   | 9626                   | +14   | 503   | 67                   | 0298                   | +14   | 503   |
| 18                   | 8338                   | +13   | 504   | 68                   | 8982                   | +13   | 504   | 18                   | 9640                   | +13   | 503   | 68                   | 0312                   | +13   | 503   |
| 19                   | 8351                   | +13   | 504   | 69                   | 8995                   | +13   | 504   | 19                   | 9653                   | +13   | 503   | 69                   | 0325                   | +14   | 503   |
| 9'3020               | 0'002 8364             | +13   | 9'504 | 9'3070               | 0'002 9008             | +13   | 9'504 | 9'3120               | 0'002 9660             | +14   | 9'503 | 9'3170               | 0'003 0339             | +14   | 9'503 |
| 21                   | 8377                   | +12   | 504   | 71                   | 9021                   | +12   | 504   | 21                   | 9680                   | +13   | 503   | 71                   | 0353                   | +13   | 503   |
| 22                   | 8389                   | +13   | 504   | 72                   | 9034                   | +13   | 504   | 22                   | 9693                   | +13   | 503   | 72                   | 0366                   | +14   | 503   |
| 23                   | 8402                   | +13   | 504   | 73                   | 9047                   | +13   | 504   | 23                   | 9706                   | +13   | 503   | 73                   | 0380                   | +13   | 503   |
| 24                   | 8415                   | +13   | 504   | 74                   | 9060                   | +13   | 504   | 24                   | 9719                   | +14   | 503   | 74                   | 0393                   | +14   | 503   |
| 9'3025               | 0'002 8428             | +12   | 9'504 | 9'3075               | 0'002 9073             | +13   | 9'504 | 9'3125               | 0'002 9733             | +13   | 9'503 | 9'3175               | 0'003 0407             | +14   | 9'503 |
| 26                   | 8440                   | +13   | 504   | 76                   | 9086                   | +13   | 504   | 26                   | 9746                   | +14   | 503   | 76                   | 0421                   | +13   | 503   |
| 27                   | 8453                   | +13   | 504   | 77                   | 9099                   | +13   | 504   | 27                   | 9760                   | +13   | 503   | 77                   | 0434                   | +14   | 503   |
| 28                   | 8466                   | +13   | 504   | 78                   | 9112                   | +13   | 504   | 28                   | 9773                   | +13   | 503   | 78                   | 0448                   | +14   | 503   |
| 29                   | 8479                   | +13   | 504   | 79                   | 9125                   | +13   | 504   | 29                   | 9786                   | +14   | 503   | 79                   | 0462                   | +13   | 503   |
| 9'3030               | 0'002 8492             | +12   | 9'504 | 9'3080               | 0'002 9138             | +13   | 9'504 | 9'3130               | 0'002 9800             | +13   | 9'503 | 9'3180               | 0'003 0475             | +14   | 9'503 |
| 31                   | 8504                   | +13   | 504   | 81                   | 9151                   | +13   | 503   | 31                   | 9813                   | +13   | 503   | 81                   | 0489                   | +14   | 503   |
| 32                   | 8517                   | +13   | 504   | 82                   | 9164                   | +13   | 503   | 32                   | 9826                   | +14   | 503   | 82                   | 0503                   | +13   | 503   |
| 33                   | 8530                   | +13   | 504   | 83                   | 9178                   | +13   | 503   | 33                   | 9840                   | +13   | 503   | 83                   | 0516                   | +14   | 503   |
| 34                   | 8543                   | +13   | 504   | 84                   | 9191                   | +13   | 503   | 34                   | 9853                   | +14   | 503   | 84                   | 0530                   | +14   | 503   |
| 9'3035               | 0'002 8556             | +12   | 9'504 | 9'3085               | 0'002 9204             | +13   | 9'503 | 9'3135               | 0'002 9867             | +13   | 9'503 | 9'3185               | 0'003 0544             | +13   | 9'503 |
| 36                   | 8568                   | +13   | 504   | 86                   | 9217                   | +13   | 503   | 36                   | 9880                   | +13   | 503   | 86                   | 0557                   | +14   | 503   |
| 37                   | 8581                   | +13   | 504   | 87                   | 9230                   | +13   | 503   | 37                   | 9893                   | +14   | 503   | 87                   | 0571                   | +14   | 503   |
| 38                   | 8594                   | +13   | 504   | 88                   | 9243                   | +13   | 503   | 38                   | 9907                   | +13   | 503   | 88                   | 0585                   | +14   | 503   |
| 39                   | 8607                   | +13   | 504   | 89                   | 9256                   | +13   | 503   | 39                   | 9920                   | +14   | 503   | 89                   | 0599                   | +13   | 503   |
| 9'3040               | 0'002 8620             | +13   | 9'504 | 9'3090               | 0'002 9269             | +14   | 9'503 | 9'3140               | 0'002 9934             | +13   | 9'503 | 9'3190               | 0'003 0612             | +14   | 9'503 |
| 41                   | 8633                   | +13   | 504   | 91                   | 9283                   | +13   | 503   | 41                   | 9947                   | +13   | 503   | 91                   | 0626                   | +14   | 503   |
| 42                   | 8646                   | +12   | 504   | 92                   | 9296                   | +12   | 503   | 42                   | 9960                   | +14   | 503   | 92                   | 0640                   | +14   | 502   |
| 43                   | 8658                   | +13   | 504   | 93                   | 9309                   | +13   | 503   | 43                   | 9974                   | +13   | 503   | 93                   | 0654                   | +13   | 502   |
| 44                   | 8671                   | +13   | 504   | 94                   | 9322                   | +13   | 503   | 44                   | 9987                   | +14   | 503   | 94                   | 0667                   | +14   | 502   |
| 9'3045               | 0'002 8684             | +13   | 9'504 | 9'3095               | 0'002 9335             | +13   | 9'503 | 9'3145               | 0'003 0001             | +13   | 9'503 | 9'3195               | 0'003 0681             | +14   | 9'502 |
| 46                   | 8697                   | +13   | 504   | 96                   | 9348                   | +13   | 503   | 46                   | 0014                   | +14   | 503   | 96                   | 0695                   | +14   | 502   |
| 47                   | 8710                   | +13   | 504   | 97                   | 9362                   | +13   | 503   | 47                   | 0028                   | +13   | 503   | 97                   | 0709                   | +13   | 502   |
| 48                   | 8723                   | +13   | 504   | 98                   | 9375                   | +13   | 503   | 48                   | 0041                   | +13   | 503   | 98                   | 0722                   | +14   | 502   |
| 49                   | 8736                   | +13   | 504   | 99                   | 9388                   | +13   | 503   | 49                   | 0055                   | +13   | 503   | 99                   | 0736                   | +14   | 502   |
| 9'3050               | 0'002 8749             |       | 9'504 | 9'3100               | 0'002 9401             |       | 9'503 | 9'3150               | 0'003 0008             |       | 9'503 | 9'3200               | 0'003 0750             |       | 9'502 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  |
|----------------------|-------------------------|-------|--------|----------------------|-------------------------|-------|--------|----------------------|-------------------------|-------|--------|----------------------|-------------------------|-------|--------|
| 9° 3200              | 0° 003 0750             | +14   | 9° 502 | 9° 3250              | 0° 003 1447             | +14   | 9° 502 | 9° 3300              | 0° 003 2159             | +14   | 9° 501 | 9° 3350              | 0° 003 2880             | +15   | 9° 501 |
| 01                   | 0704                    | +13   | 502    | 51                   | 1401                    | +14   | 502    | 01                   | 2173                    | +14   | 501    | 51                   | 2901                    | +15   | 501    |
| 02                   | 0777                    | +14   | 502    | 52                   | 1475                    | +14   | 502    | 02                   | 2187                    | +15   | 501    | 52                   | 2916                    | +15   | 501    |
| 03                   | 0791                    | +14   | 502    | 53                   | 1489                    | +14   | 502    | 03                   | 2202                    | +14   | 501    | 53                   | 2931                    | +14   | 501    |
| 04                   | 0805                    | +14   | 502    | 54                   | 1503                    | +14   | 502    | 04                   | 2216                    | +15   | 501    | 54                   | 2945                    | +15   | 501    |
| 9° 3205              | 0° 003 0819             | +14   | 9° 502 | 9° 3255              | 0° 003 1517             | +14   | 9° 502 | 9° 3305              | 0° 003 2231             | +14   | 9° 501 | 9° 3355              | 0° 003 2960             | +15   | 9° 501 |
| 06                   | 0833                    | +13   | 502    | 56                   | 1531                    | +14   | 502    | 06                   | 2245                    | +15   | 501    | 56                   | 2975                    | +15   | 501    |
| 07                   | 0840                    | +14   | 502    | 57                   | 1545                    | +14   | 502    | 07                   | 2260                    | +14   | 501    | 57                   | 2990                    | +14   | 501    |
| 08                   | 0860                    | +14   | 502    | 58                   | 1559                    | +15   | 502    | 08                   | 2274                    | +14   | 501    | 58                   | 3004                    | +15   | 501    |
| 09                   | 0874                    | +14   | 502    | 59                   | 1574                    | +14   | 502    | 09                   | 2288                    | +15   | 501    | 59                   | 3019                    | +15   | 501    |
| 9° 3210              | 0° 003 0888             | +14   | 9° 502 | 9° 3260              | 0° 003 1588             | +14   | 9° 502 | 9° 3310              | 0° 003 2303             | +14   | 9° 501 | 9° 3360              | 0° 003 3034             | +15   | 9° 501 |
| 11                   | 0902                    | +14   | 502    | 61                   | 1602                    | +14   | 502    | 11                   | 2317                    | +15   | 501    | 61                   | 3049                    | +14   | 501    |
| 12                   | 0916                    | +14   | 502    | 62                   | 1616                    | +14   | 502    | 12                   | 2332                    | +14   | 501    | 62                   | 3063                    | +15   | 501    |
| 13                   | 0930                    | +13   | 502    | 63                   | 1630                    | +14   | 502    | 13                   | 2346                    | +15   | 501    | 63                   | 3078                    | +15   | 501    |
| 14                   | 0943                    | +14   | 502    | 64                   | 1644                    | +15   | 502    | 14                   | 2361                    | +14   | 501    | 64                   | 3093                    | +15   | 501    |
| 9° 3215              | 0° 003 0957             | +14   | 9° 502 | 9° 3265              | 0° 003 1659             | +14   | 9° 502 | 9° 3315              | 0° 003 2375             | +15   | 9° 501 | 9° 3365              | 0° 003 3108             | +15   | 9° 501 |
| 16                   | 0971                    | +14   | 502    | 66                   | 1673                    | +14   | 502    | 16                   | 2390                    | +14   | 501    | 66                   | 3123                    | +14   | 501    |
| 17                   | 0985                    | +14   | 502    | 67                   | 1687                    | +14   | 502    | 17                   | 2404                    | +15   | 501    | 67                   | 3137                    | +15   | 501    |
| 18                   | 0999                    | +14   | 502    | 68                   | 1701                    | +14   | 502    | 18                   | 2419                    | +14   | 501    | 68                   | 3152                    | +15   | 501    |
| 19                   | 1013                    | +14   | 502    | 69                   | 1715                    | +15   | 502    | 19                   | 2433                    | +15   | 501    | 69                   | 3167                    | +15   | 501    |
| 9° 3220              | 0° 003 1027             | +14   | 9° 502 | 9° 3270              | 0° 003 1730             | +14   | 9° 502 | 9° 3320              | 0° 003 2448             | +14   | 9° 501 | 9° 3370              | 0° 003 3182             | +15   | 9° 501 |
| 21                   | 1041                    | +14   | 502    | 71                   | 1744                    | +14   | 502    | 21                   | 2462                    | +15   | 501    | 71                   | 3197                    | +15   | 501    |
| 22                   | 1055                    | +13   | 502    | 72                   | 1758                    | +14   | 502    | 22                   | 2477                    | +14   | 501    | 72                   | 3212                    | +14   | 501    |
| 23                   | 1068                    | +14   | 502    | 73                   | 1772                    | +14   | 502    | 23                   | 2491                    | +15   | 501    | 73                   | 3226                    | +15   | 501    |
| 24                   | 1082                    | +14   | 502    | 74                   | 1786                    | +15   | 502    | 24                   | 2506                    | +15   | 501    | 74                   | 3241                    | +15   | 501    |
| 9° 3225              | 0° 003 1090             | +14   | 9° 502 | 9° 3275              | 0° 003 1801             | +14   | 9° 502 | 9° 3325              | 0° 003 2521             | +14   | 9° 501 | 9° 3375              | 0° 003 3256             | +15   | 9° 501 |
| 26                   | 1104                    | +14   | 502    | 76                   | 1815                    | +14   | 502    | 26                   | 2535                    | +15   | 501    | 76                   | 3271                    | +15   | 501    |
| 27                   | 1124                    | +14   | 502    | 77                   | 1829                    | +14   | 502    | 27                   | 2550                    | +14   | 501    | 77                   | 3286                    | +15   | 501    |
| 28                   | 1138                    | +14   | 502    | 78                   | 1843                    | +15   | 502    | 28                   | 2564                    | +15   | 501    | 78                   | 3301                    | +15   | 501    |
| 29                   | 1152                    | +14   | 502    | 79                   | 1858                    | +14   | 502    | 29                   | 2579                    | +14   | 501    | 79                   | 3316                    | +15   | 501    |
| 9° 3230              | 0° 003 1166             | +14   | 9° 502 | 9° 3280              | 0° 003 1872             | +14   | 9° 502 | 9° 3330              | 0° 003 2593             | +15   | 9° 501 | 9° 3380              | 0° 003 3331             | +15   | 9° 501 |
| 31                   | 1180                    | +14   | 502    | 81                   | 1886                    | +15   | 502    | 31                   | 2608                    | +15   | 501    | 81                   | 3346                    | +14   | 501    |
| 32                   | 1194                    | +14   | 502    | 82                   | 1901                    | +14   | 502    | 32                   | 2623                    | +14   | 501    | 82                   | 3360                    | +15   | 501    |
| 33                   | 1208                    | +14   | 502    | 83                   | 1915                    | +14   | 502    | 33                   | 2637                    | +15   | 501    | 83                   | 3375                    | +15   | 501    |
| 34                   | 1222                    | +14   | 502    | 84                   | 1929                    | +14   | 502    | 34                   | 2652                    | +14   | 501    | 84                   | 3390                    | +15   | 501    |
| 9° 3235              | 0° 003 1236             | +14   | 9° 502 | 9° 3285              | 0° 003 1943             | +15   | 9° 502 | 9° 3335              | 0° 003 2666             | +15   | 9° 501 | 9° 3385              | 0° 003 3405             | +15   | 9° 501 |
| 36                   | 1250                    | +14   | 502    | 86                   | 1958                    | +14   | 502    | 36                   | 2681                    | +15   | 501    | 86                   | 3420                    | +15   | 501    |
| 37                   | 1264                    | +14   | 502    | 87                   | 1972                    | +14   | 502    | 37                   | 2696                    | +14   | 501    | 87                   | 3435                    | +15   | 501    |
| 38                   | 1278                    | +14   | 502    | 88                   | 1986                    | +15   | 502    | 38                   | 2710                    | +15   | 501    | 88                   | 3450                    | +15   | 501    |
| 39                   | 1292                    | +14   | 502    | 89                   | 2001                    | +14   | 502    | 39                   | 2725                    | +15   | 501    | 89                   | 3465                    | +15   | 501    |
| 9° 3240              | 0° 003 1306             | +14   | 9° 502 | 9° 3290              | 0° 003 2015             | +14   | 9° 502 | 9° 3340              | 0° 003 2740             | +14   | 9° 501 | 9° 3390              | 0° 003 3480             | +15   | 9° 501 |
| 41                   | 1320                    | +14   | 502    | 91                   | 2029                    | +15   | 502    | 41                   | 2754                    | +15   | 501    | 91                   | 3495                    | +15   | 501    |
| 42                   | 1334                    | +14   | 502    | 92                   | 2044                    | +14   | 502    | 42                   | 2769                    | +15   | 501    | 92                   | 3510                    | +15   | 501    |
| 43                   | 1348                    | +14   | 502    | 93                   | 2058                    | +14   | 502    | 43                   | 2784                    | +14   | 501    | 93                   | 3525                    | +15   | 501    |
| 44                   | 1362                    | +14   | 502    | 94                   | 2072                    | +15   | 502    | 44                   | 2798                    | +15   | 501    | 94                   | 3540                    | +15   | 501    |
| 9° 3245              | 0° 003 1376             | +14   | 9° 502 | 9° 3295              | 0° 003 2087             | +14   | 9° 502 | 9° 3345              | 0° 003 2813             | +15   | 9° 501 | 9° 3395              | 0° 003 3555             | +15   | 9° 501 |
| 46                   | 1390                    | +14   | 502    | 96                   | 2101                    | +14   | 502    | 46                   | 2828                    | +14   | 501    | 96                   | 3570                    | +15   | 501    |
| 47                   | 1404                    | +14   | 502    | 97                   | 2115                    | +15   | 502    | 47                   | 2842                    | +15   | 501    | 97                   | 3585                    | +15   | 501    |
| 48                   | 1418                    | +14   | 502    | 98                   | 2130                    | +14   | 502    | 48                   | 2857                    | +15   | 501    | 98                   | 3600                    | +15   | 501    |
| 49                   | 1432                    | +15   | 502    | 99                   | 2144                    | +15   | 501    | 49                   | 2872                    | +14   | 501    | 99                   | 3615                    | +15   | 501    |
| 9° 3250              | 0° 003 1447             |       | 9° 502 | 9° 3300              | 0° 003 2159             |       | 9° 501 | 9° 3350              | 0° 003 2886             |       | 9° 501 | 9° 3400              | 0° 003 3630             |       | 9° 500 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g |
|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|
| 9.3400               | 0.003 3630              | +15   | 9.500 | 9.3450               | 0.003 4390              | +15   | 9.500 | 9.3500               | 0.003 5167              | +15   | 9.499 | 9.3550               | 0.003 5900              | +16   | 9.499 |
| 01                   | 3045                    | +15   | 500   | 51                   | 4405                    | +16   | 500   | 01                   | 5182                    | +16   | 499   | 51                   | 5070                    | +16   | 499   |
| 02                   | 3060                    | +15   | 500   | 52                   | 4421                    | +15   | 500   | 02                   | 5198                    | +16   | 499   | 52                   | 5092                    | +17   | 499   |
| 03                   | 3075                    | +15   | 500   | 53                   | 4436                    | +16   | 500   | 03                   | 5214                    | +16   | 499   | 53                   | 6000                    | +16   | 499   |
| 04                   | 3090                    | +15   | 500   | 54                   | 4452                    | +15   | 500   | 04                   | 5230                    | +15   | 499   | 54                   | 6025                    | +16   | 499   |
| 9.3405               | 0.003 3705              | +15   | 9.500 | 9.3455               | 0.003 4407              | +15   | 9.500 | 9.3505               | 0.003 5245              | +16   | 9.499 | 9.3555               | 0.003 6041              | +16   | 9.499 |
| 06                   | 3720                    | +15   | 500   | 50                   | 4482                    | +16   | 500   | 06                   | 5261                    | +16   | 499   | 50                   | 6057                    | +16   | 499   |
| 07                   | 3735                    | +16   | 500   | 57                   | 4498                    | +15   | 500   | 07                   | 5277                    | +16   | 499   | 57                   | 6073                    | +16   | 499   |
| 08                   | 3751                    | +15   | 500   | 58                   | 4513                    | +16   | 500   | 08                   | 5293                    | +15   | 499   | 58                   | 6089                    | +16   | 499   |
| 09                   | 3766                    | +15   | 500   | 59                   | 4529                    | +15   | 500   | 09                   | 5308                    | +16   | 499   | 59                   | 6105                    | +16   | 499   |
| 9.3410               | 0.003 3781              | +15   | 9.500 | 9.3460               | 0.003 4544              | +15   | 9.500 | 9.3510               | 0.003 5324              | +16   | 9.499 | 9.3560               | 0.003 6121              | +16   | 9.499 |
| 11                   | 3796                    | +15   | 500   | 01                   | 4550                    | +16   | 500   | 11                   | 5340                    | +16   | 499   | 61                   | 6137                    | +16   | 499   |
| 12                   | 3811                    | +15   | 500   | 02                   | 4575                    | +15   | 500   | 12                   | 5356                    | +15   | 499   | 62                   | 6153                    | +17   | 499   |
| 13                   | 3826                    | +15   | 500   | 03                   | 4590                    | +16   | 500   | 13                   | 5371                    | +16   | 499   | 63                   | 6170                    | +16   | 499   |
| 14                   | 3841                    | +15   | 500   | 04                   | 4606                    | +15   | 500   | 14                   | 5387                    | +16   | 499   | 64                   | 6186                    | +16   | 499   |
| 9.3415               | 0.003 3856              | +15   | 9.500 | 9.3465               | 0.003 4621              | +16   | 9.500 | 9.3515               | 0.003 5403              | +16   | 9.499 | 9.3565               | 0.003 6202              | +16   | 9.499 |
| 16                   | 3871                    | +16   | 500   | 06                   | 4637                    | +15   | 500   | 16                   | 5419                    | +16   | 499   | 66                   | 6218                    | +16   | 499   |
| 17                   | 3887                    | +15   | 500   | 07                   | 4652                    | +16   | 500   | 17                   | 5435                    | +15   | 499   | 67                   | 6234                    | +16   | 499   |
| 18                   | 3902                    | +15   | 500   | 08                   | 4668                    | +15   | 500   | 18                   | 5450                    | +16   | 499   | 68                   | 6250                    | +16   | 499   |
| 19                   | 3917                    | +15   | 500   | 09                   | 4683                    | +16   | 500   | 19                   | 5466                    | +16   | 499   | 69                   | 6266                    | +17   | 499   |
| 9.3420               | 0.003 3932              | +15   | 9.500 | 9.3470               | 0.003 4699              | +15   | 9.500 | 9.3520               | 0.003 5482              | +16   | 9.499 | 9.3570               | 0.003 6283              | +16   | 9.499 |
| 21                   | 3947                    | +15   | 500   | 11                   | 4714                    | +16   | 500   | 21                   | 5498                    | +16   | 499   | 71                   | 6299                    | +16   | 499   |
| 22                   | 3962                    | +16   | 500   | 12                   | 4730                    | +15   | 500   | 22                   | 5514                    | +16   | 499   | 72                   | 6315                    | +16   | 499   |
| 23                   | 3978                    | +15   | 500   | 13                   | 4745                    | +16   | 500   | 23                   | 5530                    | +16   | 499   | 73                   | 6331                    | +16   | 499   |
| 24                   | 3993                    | +15   | 500   | 14                   | 4761                    | +15   | 500   | 24                   | 5546                    | +15   | 499   | 74                   | 6347                    | +17   | 499   |
| 9.3425               | 0.003 4008              | +15   | 9.500 | 9.3475               | 0.003 4776              | +16   | 9.500 | 9.3525               | 0.003 5561              | +16   | 9.499 | 9.3575               | 0.003 6364              | +16   | 9.499 |
| 26                   | 4023                    | +15   | 500   | 16                   | 4792                    | +15   | 500   | 26                   | 5577                    | +16   | 499   | 76                   | 6380                    | +16   | 499   |
| 27                   | 4038                    | +16   | 500   | 17                   | 4807                    | +16   | 500   | 27                   | 5593                    | +16   | 499   | 77                   | 6396                    | +16   | 499   |
| 28                   | 4054                    | +15   | 500   | 18                   | 4823                    | +15   | 500   | 28                   | 5609                    | +16   | 499   | 78                   | 6412                    | +17   | 499   |
| 29                   | 4069                    | +15   | 500   | 19                   | 4838                    | +16   | 500   | 29                   | 5625                    | +16   | 499   | 79                   | 6429                    | +16   | 499   |
| 9.3430               | 0.003 4084              | +15   | 9.500 | 9.3480               | 0.003 4854              | +16   | 9.500 | 9.3530               | 0.003 5641              | +16   | 9.499 | 9.3580               | 0.003 6445              | +16   | 9.499 |
| 31                   | 4099                    | +16   | 500   | 21                   | 4870                    | +15   | 500   | 31                   | 5657                    | +16   | 499   | 81                   | 6461                    | +16   | 499   |
| 32                   | 4115                    | +15   | 500   | 22                   | 4886                    | +16   | 500   | 32                   | 5673                    | +16   | 499   | 82                   | 6477                    | +17   | 499   |
| 33                   | 4130                    | +15   | 500   | 23                   | 4901                    | +15   | 500   | 33                   | 5689                    | +16   | 499   | 83                   | 6494                    | +16   | 499   |
| 34                   | 4145                    | +15   | 500   | 24                   | 4916                    | +16   | 500   | 34                   | 5705                    | +15   | 499   | 84                   | 6510                    | +16   | 499   |
| 9.3435               | 0.003 4160              | +16   | 9.500 | 9.3485               | 0.003 4932              | +16   | 9.500 | 9.3535               | 0.003 5720              | +16   | 9.499 | 9.3585               | 0.003 6520              | +16   | 9.499 |
| 36                   | 4176                    | +15   | 500   | 26                   | 4948                    | +15   | 500   | 36                   | 5736                    | +16   | 499   | 86                   | 6542                    | +17   | 499   |
| 37                   | 4191                    | +15   | 500   | 27                   | 4963                    | +16   | 500   | 37                   | 5752                    | +16   | 499   | 87                   | 6559                    | +16   | 499   |
| 38                   | 4206                    | +15   | 500   | 28                   | 4979                    | +15   | 500   | 38                   | 5768                    | +16   | 499   | 88                   | 6575                    | +16   | 499   |
| 39                   | 4221                    | +16   | 500   | 29                   | 4994                    | +16   | 500   | 39                   | 5784                    | +16   | 499   | 89                   | 6591                    | +17   | 499   |
| 9.3440               | 0.003 4237              | +15   | 9.500 | 9.3490               | 0.003 5010              | +16   | 9.500 | 9.3540               | 0.003 5800              | +16   | 9.499 | 9.3590               | 0.003 6608              | +16   | 9.498 |
| 41                   | 4252                    | +15   | 500   | 31                   | 5026                    | +15   | 500   | 41                   | 5816                    | +16   | 499   | 91                   | 6624                    | +16   | 498   |
| 42                   | 4267                    | +16   | 500   | 32                   | 5041                    | +16   | 500   | 42                   | 5832                    | +16   | 499   | 92                   | 6640                    | +17   | 498   |
| 43                   | 4283                    | +15   | 500   | 33                   | 5057                    | +16   | 500   | 43                   | 5848                    | +16   | 499   | 93                   | 6657                    | +16   | 498   |
| 44                   | 4298                    | +15   | 500   | 34                   | 5073                    | +15   | 500   | 44                   | 5864                    | +16   | 499   | 94                   | 6673                    | +16   | 498   |
| 9.3445               | 0.003 4313              | +16   | 9.500 | 9.3495               | 0.003 5088              | +16   | 9.500 | 9.3545               | 0.003 5880              | +16   | 9.499 | 9.3595               | 0.003 6689              | +17   | 9.498 |
| 46                   | 4329                    | +15   | 500   | 36                   | 5104                    | +16   | 500   | 46                   | 5896                    | +16   | 499   | 96                   | 6706                    | +16   | 498   |
| 47                   | 4344                    | +15   | 500   | 37                   | 5120                    | +15   | 499   | 47                   | 5912                    | +16   | 499   | 97                   | 6722                    | +17   | 498   |
| 48                   | 4359                    | +16   | 500   | 38                   | 5135                    | +16   | 499   | 48                   | 5928                    | +16   | 499   | 98                   | 6739                    | +16   | 498   |
| 49                   | 4375                    | +15   | 500   | 39                   | 5151                    | +16   | 499   | 49                   | 5944                    | +16   | 499   | 99                   | 6755                    | +16   | 498   |
| 9.3450               | 0.003 4390              |       | 9.500 | 9.3500               | 0.003 5167              |       | 9.499 | 9.3550               | 0.003 5960              |       | 9.499 | 9.3600               | 0.003 6771              |       | 9.498 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g |
|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|
| 9.3400               | 0.003 6771              | +17   | 9.408 | 0.3050               | 0.003 7600              | +17   | 9.408 | 9.3700               | 0.003 8447              | +17   | 9.497 | 9.3750               | 0.003 9312              | +17   | 9.497 |
| 01                   | 6788                    | +16   | 498   | 51                   | 7617                    | +16   | 498   | 01                   | 8464                    | +17   | 497   | 51                   | 9329                    | +18   | 497   |
| 02                   | 6804                    | +17   | 498   | 52                   | 7633                    | +17   | 498   | 02                   | 8481                    | +17   | 497   | 52                   | 9347                    | +17   | 497   |
| 03                   | 6821                    | +16   | 498   | 53                   | 7650                    | +17   | 498   | 03                   | 8498                    | +17   | 497   | 53                   | 9364                    | +18   | 497   |
| 04                   | 6837                    | +16   | 498   | 54                   | 7667                    | +17   | 498   | 04                   | 8515                    | +17   | 497   | 54                   | 9382                    | +17   | 497   |
| 9.3405               | 0.003 6853              | +17   | 9.498 | 9.3655               | 0.003 7684              | +17   | 9.498 | 9.3705               | 0.003 8532              | +17   | 9.497 | 9.3755               | 0.003 9399              | +18   | 9.497 |
| 06                   | 6870                    | +16   | 498   | 56                   | 7701                    | +16   | 498   | 06                   | 8549                    | +18   | 497   | 56                   | 9417                    | +17   | 497   |
| 07                   | 6886                    | +17   | 498   | 57                   | 7717                    | +17   | 498   | 07                   | 8567                    | +17   | 497   | 57                   | 9434                    | +17   | 497   |
| 08                   | 6903                    | +16   | 498   | 58                   | 7734                    | +17   | 498   | 08                   | 8584                    | +17   | 497   | 58                   | 9452                    | +17   | 497   |
| 09                   | 6919                    | +17   | 498   | 59                   | 7751                    | +17   | 498   | 09                   | 8601                    | +17   | 497   | 59                   | 9469                    | +18   | 497   |
| 9.3410               | 0.003 6936              | +16   | 9.498 | 9.3660               | 0.003 7768              | +17   | 9.498 | 9.3710               | 0.003 8615              | +17   | 9.497 | 9.3760               | 0.003 9487              | +18   | 9.497 |
| 11                   | 6952                    | +17   | 498   | 61                   | 7785                    | +17   | 498   | 11                   | 8635                    | +17   | 497   | 61                   | 9505                    | +17   | 497   |
| 12                   | 6969                    | +16   | 498   | 62                   | 7801                    | +16   | 498   | 12                   | 8653                    | +18   | 497   | 62                   | 9522                    | +18   | 497   |
| 13                   | 6985                    | +17   | 498   | 63                   | 7818                    | +17   | 498   | 13                   | 8670                    | +17   | 497   | 63                   | 9540                    | +17   | 497   |
| 14                   | 7002                    | +16   | 498   | 64                   | 7835                    | +17   | 498   | 14                   | 8687                    | +17   | 497   | 64                   | 9557                    | +18   | 497   |
| 9.3615               | 0.003 7018              | +17   | 9.498 | 9.3605               | 0.003 7852              | +17   | 9.498 | 9.3715               | 0.003 8704              | +17   | 9.497 | 9.3765               | 0.003 9575              | +17   | 9.496 |
| 16                   | 7035                    | +16   | 498   | 66                   | 7869                    | +17   | 498   | 16                   | 8721                    | +18   | 497   | 66                   | 9592                    | +18   | 496   |
| 17                   | 7051                    | +17   | 498   | 67                   | 7886                    | +17   | 498   | 17                   | 8739                    | +17   | 497   | 67                   | 9610                    | +18   | 496   |
| 18                   | 7068                    | +16   | 498   | 68                   | 7903                    | +17   | 498   | 18                   | 8756                    | +17   | 497   | 68                   | 9628                    | +17   | 496   |
| 19                   | 7084                    | +17   | 498   | 69                   | 7920                    | +16   | 498   | 19                   | 8773                    | +17   | 497   | 69                   | 9645                    | +18   | 496   |
| 9.3620               | 0.003 7101              | +16   | 9.498 | 9.3670               | 0.003 7936              | +17   | 9.498 | 9.3720               | 0.003 8790              | +18   | 9.497 | 9.3770               | 0.003 9663              | +18   | 9.496 |
| 21                   | 7117                    | +17   | 498   | 71                   | 7953                    | +17   | 498   | 21                   | 8808                    | +17   | 497   | 71                   | 9681                    | +17   | 496   |
| 22                   | 7134                    | +16   | 498   | 72                   | 7970                    | +17   | 498   | 22                   | 8825                    | +17   | 497   | 72                   | 9698                    | +18   | 496   |
| 23                   | 7150                    | +17   | 498   | 73                   | 7987                    | +17   | 498   | 23                   | 8842                    | +18   | 497   | 73                   | 9716                    | +18   | 496   |
| 24                   | 7167                    | +16   | 498   | 74                   | 8004                    | +17   | 498   | 24                   | 8860                    | +17   | 497   | 74                   | 9734                    | +17   | 496   |
| 9.3625               | 0.003 7183              | +17   | 9.498 | 9.3675               | 0.003 8021              | +17   | 9.498 | 9.3725               | 0.003 8877              | +17   | 9.497 | 9.3775               | 0.003 9751              | +18   | 9.496 |
| 26                   | 7200                    | +17   | 498   | 76                   | 8038                    | +17   | 498   | 26                   | 8894                    | +17   | 497   | 76                   | 9769                    | +18   | 496   |
| 27                   | 7217                    | +16   | 498   | 77                   | 8055                    | +17   | 498   | 27                   | 8911                    | +18   | 497   | 77                   | 9787                    | +17   | 496   |
| 28                   | 7233                    | +17   | 498   | 78                   | 8072                    | +17   | 498   | 28                   | 8929                    | +18   | 497   | 78                   | 9804                    | +18   | 496   |
| 29                   | 7250                    | +16   | 498   | 79                   | 8089                    | +17   | 497   | 29                   | 8946                    | +17   | 497   | 79                   | 9822                    | +18   | 496   |
| 9.3630               | 0.003 7266              | +17   | 9.498 | 9.3680               | 0.003 8106              | +17   | 9.497 | 9.3730               | 0.003 8963              | +18   | 9.497 | 9.3780               | 0.003 9840              | +17   | 9.496 |
| 31                   | 7283                    | +17   | 498   | 81                   | 8123                    | +17   | 497   | 31                   | 8981                    | +17   | 497   | 81                   | 9857                    | +18   | 496   |
| 32                   | 7300                    | +16   | 498   | 82                   | 8140                    | +17   | 497   | 32                   | 8998                    | +18   | 497   | 82                   | 9875                    | +18   | 496   |
| 33                   | 7316                    | +17   | 498   | 83                   | 8157                    | +17   | 497   | 33                   | 9016                    | +17   | 497   | 83                   | 9893                    | +18   | 496   |
| 34                   | 7333                    | +16   | 498   | 84                   | 8174                    | +17   | 497   | 34                   | 9033                    | +17   | 497   | 84                   | 9911                    | +17   | 496   |
| 9.3635               | 0.003 7349              | +17   | 9.498 | 9.3685               | 0.003 8191              | +17   | 9.497 | 9.3735               | 0.003 9050              | +18   | 9.497 | 9.3785               | 0.003 9928              | +18   | 9.496 |
| 36                   | 7366                    | +17   | 498   | 86                   | 8208                    | +17   | 497   | 36                   | 9068                    | +17   | 497   | 86                   | 9946                    | +18   | 496   |
| 37                   | 7383                    | +16   | 498   | 87                   | 8225                    | +17   | 497   | 37                   | 9085                    | +17   | 497   | 87                   | 9964                    | +18   | 496   |
| 38                   | 7399                    | +17   | 498   | 88                   | 8242                    | +17   | 497   | 38                   | 9102                    | +18   | 497   | 88                   | 9982                    | +17   | 496   |
| 39                   | 7416                    | +17   | 498   | 89                   | 8259                    | +17   | 497   | 39                   | 9120                    | +17   | 497   | 89                   | 9999                    | +18   | 496   |
| 9.3640               | 0.003 7433              | +16   | 9.498 | 9.3690               | 0.003 8276              | +17   | 9.497 | 9.3740               | 0.003 9137              | +18   | 9.497 | 9.3790               | 0.004 0017              | +18   | 9.496 |
| 41                   | 7449                    | +17   | 498   | 91                   | 8293                    | +17   | 497   | 41                   | 9155                    | +17   | 497   | 91                   | 0035                    | +18   | 496   |
| 42                   | 7466                    | +17   | 498   | 92                   | 8310                    | +17   | 497   | 42                   | 9172                    | +17   | 497   | 92                   | 0053                    | +18   | 496   |
| 43                   | 7483                    | +16   | 498   | 93                   | 8327                    | +17   | 497   | 43                   | 9189                    | +18   | 497   | 93                   | 0071                    | +18   | 496   |
| 44                   | 7500                    | +16   | 498   | 94                   | 8344                    | +17   | 497   | 44                   | 9207                    | +17   | 497   | 94                   | 0089                    | +17   | 496   |
| 9.3645               | 0.003 7516              | +17   | 9.498 | 9.3695               | 0.003 8361              | +17   | 9.497 | 9.3745               | 0.003 9224              | +18   | 9.497 | 9.3795               | 0.004 0166              | +18   | 9.496 |
| 46                   | 7533                    | +17   | 498   | 96                   | 8378                    | +17   | 497   | 46                   | 9242                    | +18   | 497   | 96                   | 0124                    | +18   | 496   |
| 47                   | 7550                    | +16   | 498   | 97                   | 8395                    | +17   | 497   | 47                   | 9259                    | +17   | 497   | 97                   | 0142                    | +18   | 496   |
| 48                   | 7566                    | +17   | 498   | 98                   | 8412                    | +18   | 497   | 48                   | 9277                    | +17   | 497   | 98                   | 0160                    | +18   | 496   |
| 49                   | 7583                    | +17   | 498   | 99                   | 8430                    | +17   | 497   | 49                   | 9294                    | +18   | 497   | 99                   | 0178                    | +18   | 496   |
| 9.3650               | 0.003 7600              |       | 9.498 | 9.3700               | 0.003 8447              |       | 9.497 | 9.3750               | 0.003 9312              |       | 9.497 | 9.3800               | 0.004 0190              |       | 9.496 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>E-M | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|--------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|
| 9'3800               | 0'004 0100             | +17   | 9'496 | 9'3850               | 0'004 1009             | +18   | 9'495 | 9'3900             | 0'004 2021             | +19   | 9'495 | 9'3950               | 0'004 2964             | +19   | 9'494 |
| 01                   | 0213                   | +18   | 499   | 51                   | 1117                   | +18   | 495   | 01                 | 2040                   | +18   | 495   | 51                   | 2983                   | +19   | 494   |
| 02                   | 0231                   | +18   | 496   | 52                   | 1135                   | +18   | 495   | 02                 | 2058                   | +19   | 495   | 52                   | 3002                   | +19   | 494   |
| 03                   | 0249                   | +18   | 496   | 53                   | 1153                   | +19   | 495   | 03                 | 2077                   | +19   | 495   | 53                   | 3021                   | +19   | 494   |
| 04                   | 0207                   | +18   | 496   | 54                   | 1172                   | +18   | 495   | 04                 | 2090                   | +18   | 495   | 54                   | 3040                   | +19   | 494   |
| 9'3805               | 0'004 0285             | +18   | 9'499 | 9'3855               | 0'004 1100             | +18   | 9'495 | 9'3905             | 0'004 2114             | +19   | 9'495 | 9'3955               | 0'004 3059             | +19   | 9'494 |
| 06                   | 0303                   | +18   | 499   | 59                   | 1208                   | +19   | 495   | 06                 | 2133                   | +19   | 495   | 56                   | 3078                   | +19   | 494   |
| 07                   | 0321                   | +18   | 496   | 57                   | 1227                   | +18   | 495   | 07                 | 2152                   | +19   | 495   | 57                   | 3097                   | +19   | 494   |
| 08                   | 0339                   | +18   | 496   | 58                   | 1245                   | +18   | 495   | 08                 | 2171                   | +19   | 495   | 58                   | 3110                   | +19   | 494   |
| 09                   | 0357                   | +18   | 499   | 59                   | 1263                   | +19   | 495   | 09                 | 2189                   | +19   | 495   | 59                   | 3135                   | +19   | 494   |
| 9'3810               | 0'004 0375             | +18   | 9'499 | 9'3860               | 0'004 1282             | +18   | 9'495 | 9'3910             | 0'004 2208             | +19   | 9'495 | 9'3960               | 0'004 3154             | +20   | 9'494 |
| 11                   | 0393                   | +18   | 496   | 61                   | 1300                   | +18   | 495   | 11                 | 2227                   | +19   | 495   | 61                   | 3174                   | +19   | 494   |
| 12                   | 0411                   | +17   | 496   | 62                   | 1318                   | +19   | 495   | 12                 | 2245                   | +19   | 495   | 62                   | 3193                   | +19   | 494   |
| 13                   | 0428                   | +18   | 499   | 63                   | 1337                   | +18   | 495   | 13                 | 2264                   | +19   | 495   | 63                   | 3212                   | +19   | 494   |
| 14                   | 0440                   | +18   | 499   | 64                   | 1355                   | +18   | 495   | 14                 | 2283                   | +19   | 495   | 64                   | 3231                   | +19   | 494   |
| 9'3815               | 0'004 0404             | +18   | 9'496 | 9'3865               | 0'004 1373             | +19   | 9'495 | 9'3915             | 0'004 2362             | +19   | 9'495 | 9'3965               | 0'004 3250             | +19   | 9'494 |
| 16                   | 0482                   | +18   | 499   | 66                   | 1392                   | +18   | 495   | 16                 | 2381                   | +19   | 495   | 66                   | 3269                   | +20   | 494   |
| 17                   | 0500                   | +18   | 496   | 67                   | 1410                   | +18   | 495   | 17                 | 2399                   | +19   | 495   | 67                   | 3289                   | +19   | 494   |
| 18                   | 0518                   | +18   | 499   | 68                   | 1428                   | +19   | 495   | 18                 | 2358                   | +19   | 495   | 68                   | 3308                   | +19   | 494   |
| 19                   | 0536                   | +18   | 499   | 69                   | 1447                   | +18   | 495   | 19                 | 2377                   | +19   | 495   | 69                   | 3327                   | +19   | 494   |
| 9'3820               | 0'004 0554             | +18   | 9'496 | 9'3870               | 0'004 1495             | +19   | 9'495 | 9'3920             | 0'004 2390             | +19   | 9'495 | 9'3970               | 0'004 3346             | +19   | 9'494 |
| 21                   | 0572                   | +19   | 499   | 71                   | 1484                   | +18   | 495   | 21                 | 2415                   | +18   | 495   | 71                   | 3365                   | +20   | 494   |
| 22                   | 0591                   | +18   | 499   | 72                   | 1502                   | +19   | 495   | 22                 | 2433                   | +19   | 495   | 72                   | 3385                   | +19   | 494   |
| 23                   | 0609                   | +18   | 499   | 73                   | 1521                   | +18   | 495   | 23                 | 2452                   | +19   | 495   | 73                   | 3404                   | +19   | 494   |
| 24                   | 0627                   | +18   | 496   | 74                   | 1539                   | +18   | 495   | 24                 | 2471                   | +19   | 495   | 74                   | 3423                   | +19   | 494   |
| 9'3825               | 0'004 0645             | +18   | 9'496 | 9'3875               | 0'004 1557             | +19   | 9'495 | 9'3925             | 0'004 2490             | +19   | 9'495 | 9'3975               | 0'004 3442             | +20   | 9'494 |
| 26                   | 0663                   | +18   | 496   | 76                   | 1576                   | +18   | 495   | 26                 | 2509                   | +19   | 495   | 76                   | 3462                   | +19   | 494   |
| 27                   | 0681                   | +18   | 496   | 77                   | 1594                   | +19   | 495   | 27                 | 2528                   | +19   | 495   | 77                   | 3481                   | +19   | 494   |
| 28                   | 0699                   | +18   | 499   | 78                   | 1613                   | +18   | 495   | 28                 | 2546                   | +19   | 494   | 78                   | 3500                   | +19   | 494   |
| 29                   | 0717                   | +18   | 499   | 79                   | 1631                   | +19   | 495   | 29                 | 2565                   | +19   | 494   | 79                   | 3519                   | +20   | 494   |
| 9'3830               | 0'004 0735             | +18   | 9'496 | 9'3880               | 0'004 1650             | +18   | 9'495 | 9'3930             | 0'004 2584             | +19   | 9'494 | 9'3980               | 0'004 3539             | +19   | 9'494 |
| 31                   | 0753                   | +18   | 499   | 81                   | 1668                   | +19   | 495   | 31                 | 2603                   | +19   | 494   | 81                   | 3558                   | +19   | 494   |
| 32                   | 0771                   | +18   | 496   | 82                   | 1687                   | +18   | 495   | 32                 | 2622                   | +19   | 494   | 82                   | 3577                   | +20   | 494   |
| 33                   | 0789                   | +19   | 496   | 83                   | 1705                   | +19   | 495   | 33                 | 2641                   | +19   | 494   | 83                   | 3597                   | +19   | 494   |
| 34                   | 0808                   | +18   | 496   | 84                   | 1724                   | +18   | 495   | 34                 | 2660                   | +19   | 494   | 84                   | 3616                   | +19   | 494   |
| 9'3835               | 0'004 0826             | +18   | 9'496 | 9'3885               | 0'004 1742             | +19   | 9'495 | 9'3935             | 0'004 2679             | +19   | 9'494 | 9'3985               | 0'004 3635             | +20   | 9'494 |
| 36                   | 0844                   | +18   | 496   | 86                   | 1761                   | +18   | 495   | 36                 | 2698                   | +19   | 494   | 86                   | 3655                   | +19   | 494   |
| 37                   | 0862                   | +18   | 496   | 87                   | 1779                   | +19   | 495   | 37                 | 2717                   | +19   | 494   | 87                   | 3674                   | +19   | 494   |
| 38                   | 0880                   | +18   | 496   | 88                   | 1798                   | +18   | 495   | 38                 | 2736                   | +19   | 494   | 88                   | 3693                   | +20   | 494   |
| 39                   | 0898                   | +18   | 499   | 89                   | 1816                   | +19   | 495   | 39                 | 2755                   | +18   | 494   | 89                   | 3713                   | +19   | 494   |
| 9'3840               | 0'004 0916             | +19   | 9'499 | 9'3890               | 0'004 1835             | +19   | 9'495 | 9'3940             | 0'004 2773             | +19   | 9'494 | 9'3990               | 0'004 3732             | +20   | 9'494 |
| 41                   | 0935                   | +18   | 496   | 91                   | 1854                   | +18   | 495   | 41                 | 2792                   | +19   | 494   | 91                   | 3752                   | +19   | 494   |
| 42                   | 0953                   | +18   | 496   | 92                   | 1872                   | +19   | 495   | 42                 | 2811                   | +19   | 494   | 92                   | 3771                   | +19   | 494   |
| 43                   | 0971                   | +18   | 499   | 93                   | 1891                   | +18   | 495   | 43                 | 2830                   | +19   | 494   | 93                   | 3790                   | +20   | 494   |
| 44                   | 0989                   | +18   | 496   | 94                   | 1909                   | +19   | 495   | 44                 | 2849                   | +19   | 494   | 94                   | 3810                   | +19   | 494   |
| 9'3845               | 0'004 1007             | +19   | 9'496 | 9'3895               | 0'004 1928             | +19   | 9'495 | 9'3945             | 0'004 2868             | +19   | 9'494 | 9'3995               | 0'004 3829             | +20   | 9'494 |
| 46                   | 1026                   | +18   | 499   | 96                   | 1947                   | +18   | 495   | 46                 | 2887                   | +19   | 494   | 96                   | 3849                   | +19   | 494   |
| 47                   | 1044                   | +18   | 496   | 97                   | 1965                   | +19   | 495   | 47                 | 2906                   | +19   | 494   | 97                   | 3868                   | +19   | 494   |
| 48                   | 1062                   | +18   | 495   | 98                   | 1984                   | +18   | 495   | 48                 | 2925                   | +20   | 494   | 98                   | 3887                   | +20   | 494   |
| 49                   | 1080                   | +19   | 495   | 99                   | 2002                   | +19   | 495   | 49                 | 2945                   | +19   | 494   | 99                   | 3907                   | +19   | 494   |
| 9'3850               | 0'004 1099             |       | 9'495 | 9'3900               | 0'004 2021             |       | 9'495 | 9'3950             | 0'004 2664             |       | 9'494 | 9'4000               | 0'004 3626             |       | 9'494 |

| log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|
| 9°4000              | 0°004 3926             | +20   | 9°494 | 9°4050              | 0°004 4910             | +20   | 9°493 | 9°4100              | 0°004 5914             | +21   | 9°492 | 9°4150              | 0°004 6941             | +20   | 9°492 |
| 01                  | 3940                   | +19   | 494   | 51                  | 4930                   | +20   | 493   | 01                  | 5935                   | +20   | 492   | 51                  | 6961                   | +21   | 492   |
| 02                  | 3965                   | +20   | 494   | 52                  | 4950                   | +20   | 493   | 02                  | 5955                   | +20   | 492   | 52                  | 6982                   | +21   | 492   |
| 03                  | 3985                   | +19   | 494   | 53                  | 4970                   | +19   | 493   | 03                  | 5975                   | +21   | 492   | 53                  | 7003                   | +21   | 491   |
| 04                  | 4004                   | +20   | 494   | 54                  | 4989                   | +20   | 493   | 04                  | 5996                   | +20   | 492   | 54                  | 7024                   | +20   | 491   |
| 9°4005              | 0°004 4024             | +19   | 9°494 | 9°4055              | 0°004 5009             | +20   | 9°493 | 9°4105              | 0°004 6016             | +20   | 9°492 | 9°4155              | 0°004 7044             | +21   | 9°491 |
| 06                  | 4043                   | +20   | 493   | 56                  | 5029                   | +20   | 493   | 06                  | 6036                   | +21   | 492   | 56                  | 7065                   | +21   | 491   |
| 07                  | 4063                   | +19   | 493   | 57                  | 5049                   | +20   | 493   | 07                  | 6057                   | +20   | 492   | 57                  | 7086                   | +21   | 491   |
| 08                  | 4082                   | +20   | 493   | 58                  | 5069                   | +20   | 493   | 08                  | 6077                   | +21   | 492   | 58                  | 7107                   | +21   | 491   |
| 09                  | 4102                   | +19   | 493   | 59                  | 5089                   | +20   | 493   | 09                  | 6098                   | +20   | 492   | 59                  | 7128                   | +20   | 491   |
| 9°4010              | 0°004 4121             | +20   | 9°493 | 9°4060              | 0°004 5109             | +20   | 9°493 | 9°4110              | 0°004 6118             | +20   | 9°492 | 9°4160              | 0°004 7148             | +21   | 9°491 |
| 11                  | 4141                   | +19   | 493   | 61                  | 5129                   | +20   | 493   | 11                  | 6138                   | +21   | 492   | 61                  | 7169                   | +21   | 491   |
| 12                  | 4160                   | +20   | 493   | 62                  | 5149                   | +20   | 493   | 12                  | 6159                   | +20   | 492   | 62                  | 7190                   | +21   | 491   |
| 13                  | 4180                   | +20   | 493   | 63                  | 5169                   | +20   | 493   | 13                  | 6179                   | +21   | 492   | 63                  | 7211                   | +21   | 491   |
| 14                  | 4200                   | +19   | 493   | 64                  | 5189                   | +20   | 493   | 14                  | 6200                   | +20   | 492   | 64                  | 7232                   | +21   | 491   |
| 9°4015              | 0°004 4219             | +20   | 9°493 | 9°4065              | 0°004 5209             | +20   | 9°493 | 9°4115              | 0°004 6220             | +20   | 9°492 | 9°4165              | 0°004 7253             | +21   | 9°491 |
| 16                  | 4239                   | +19   | 493   | 66                  | 5229                   | +20   | 493   | 16                  | 6240                   | +21   | 492   | 66                  | 7274                   | +21   | 491   |
| 17                  | 4258                   | +20   | 493   | 67                  | 5249                   | +20   | 493   | 17                  | 6261                   | +20   | 492   | 67                  | 7295                   | +20   | 491   |
| 18                  | 4278                   | +20   | 493   | 68                  | 5269                   | +20   | 493   | 18                  | 6281                   | +21   | 492   | 68                  | 7315                   | +21   | 491   |
| 19                  | 4298                   | +19   | 493   | 69                  | 5289                   | +20   | 493   | 19                  | 6302                   | +20   | 492   | 69                  | 7336                   | +21   | 491   |
| 9°4020              | 0°004 4317             | +20   | 9°493 | 9°4070              | 0°004 5309             | +20   | 9°493 | 9°4120              | 0°004 6322             | +21   | 9°492 | 9°4170              | 0°004 7357             | +21   | 9°491 |
| 21                  | 4337                   | +20   | 493   | 71                  | 5329                   | +20   | 493   | 21                  | 6343                   | +20   | 492   | 71                  | 7378                   | +21   | 491   |
| 22                  | 4357                   | +19   | 493   | 72                  | 5349                   | +20   | 493   | 22                  | 6363                   | +21   | 492   | 72                  | 7399                   | +21   | 491   |
| 23                  | 4376                   | +20   | 493   | 73                  | 5369                   | +20   | 493   | 23                  | 6384                   | +20   | 492   | 73                  | 7420                   | +21   | 491   |
| 24                  | 4396                   | +19   | 493   | 74                  | 5389                   | +20   | 493   | 24                  | 6404                   | +21   | 492   | 74                  | 7441                   | +21   | 491   |
| 9°4025              | 0°004 4415             | +20   | 9°493 | 9°4075              | 0°004 5409             | +21   | 9°493 | 9°4125              | 0°004 6425             | +20   | 9°492 | 9°4175              | 0°004 7402             | +21   | 9°491 |
| 26                  | 4435                   | +20   | 493   | 76                  | 5430                   | +20   | 493   | 26                  | 6445                   | +21   | 492   | 76                  | 7483                   | +21   | 491   |
| 27                  | 4455                   | +20   | 493   | 77                  | 5450                   | +20   | 493   | 27                  | 6466                   | +20   | 492   | 77                  | 7504                   | +21   | 491   |
| 28                  | 4475                   | +19   | 493   | 78                  | 5470                   | +20   | 493   | 28                  | 6486                   | +21   | 492   | 78                  | 7525                   | +21   | 491   |
| 29                  | 4494                   | +20   | 493   | 79                  | 5490                   | +20   | 493   | 29                  | 6507                   | +21   | 492   | 79                  | 7546                   | +21   | 491   |
| 9°4030              | 0°004 4514             | +20   | 9°493 | 9°4080              | 0°004 5510             | +20   | 9°492 | 9°4130              | 0°004 6528             | +20   | 9°492 | 9°4180              | 0°004 7507             | +21   | 9°491 |
| 31                  | 4534                   | +19   | 493   | 81                  | 5530                   | +20   | 492   | 31                  | 6548                   | +21   | 492   | 81                  | 7588                   | +21   | 491   |
| 32                  | 4553                   | +20   | 493   | 82                  | 5550                   | +21   | 492   | 32                  | 6569                   | +20   | 492   | 82                  | 7609                   | +21   | 491   |
| 33                  | 4573                   | +20   | 493   | 83                  | 5571                   | +21   | 492   | 33                  | 6589                   | +21   | 492   | 83                  | 7630                   | +21   | 491   |
| 34                  | 4593                   | +20   | 493   | 84                  | 5591                   | +20   | 492   | 34                  | 6610                   | +20   | 492   | 84                  | 7651                   | +21   | 491   |
| 9°4035              | 0°004 4613             | +19   | 9°493 | 9°4085              | 0°004 5611             | +20   | 9°492 | 9°4135              | 0°004 6630             | +21   | 9°492 | 9°4185              | 0°004 7672             | +21   | 9°491 |
| 36                  | 4632                   | +20   | 493   | 86                  | 5631                   | +20   | 492   | 36                  | 6651                   | +21   | 492   | 86                  | 7693                   | +21   | 491   |
| 37                  | 4652                   | +20   | 493   | 87                  | 5651                   | +20   | 492   | 37                  | 6672                   | +21   | 492   | 87                  | 7714                   | +21   | 491   |
| 38                  | 4672                   | +20   | 493   | 88                  | 5671                   | +21   | 492   | 38                  | 6692                   | +21   | 492   | 88                  | 7735                   | +21   | 491   |
| 39                  | 4692                   | +19   | 493   | 89                  | 5692                   | +20   | 492   | 39                  | 6713                   | +21   | 492   | 89                  | 7756                   | +21   | 491   |
| 9°4040              | 0°004 4711             | +20   | 9°493 | 9°4090              | 0°004 5712             | +20   | 9°492 | 9°4140              | 0°004 6734             | +20   | 9°492 | 9°4190              | 0°004 7777             | +21   | 9°491 |
| 41                  | 4731                   | +20   | 493   | 91                  | 5732                   | +20   | 492   | 41                  | 6754                   | +21   | 492   | 91                  | 7798                   | +22   | 491   |
| 42                  | 4751                   | +20   | 493   | 92                  | 5752                   | +21   | 492   | 42                  | 6775                   | +21   | 492   | 92                  | 7820                   | +21   | 491   |
| 43                  | 4771                   | +20   | 493   | 93                  | 5773                   | +20   | 492   | 43                  | 6796                   | +20   | 492   | 93                  | 7841                   | +21   | 491   |
| 44                  | 4791                   | +20   | 493   | 94                  | 5793                   | +20   | 492   | 44                  | 6816                   | +21   | 492   | 94                  | 7862                   | +21   | 491   |
| 9°4045              | 0°004 4811             | +19   | 9°493 | 9°4095              | 0°004 5813             | +20   | 9°492 | 9°4145              | 0°004 6837             | +21   | 9°492 | 9°4195              | 0°004 7883             | +21   | 9°491 |
| 46                  | 4830                   | +20   | 493   | 96                  | 5833                   | +21   | 492   | 46                  | 6858                   | +20   | 492   | 96                  | 7904                   | +21   | 491   |
| 47                  | 4850                   | +20   | 493   | 97                  | 5854                   | +20   | 492   | 47                  | 6878                   | +21   | 492   | 97                  | 7925                   | +21   | 491   |
| 48                  | 4870                   | +20   | 493   | 98                  | 5874                   | +20   | 492   | 48                  | 6899                   | +21   | 492   | 98                  | 7946                   | +22   | 491   |
| 49                  | 4890                   | +20   | 493   | 99                  | 5894                   | +20   | 492   | 49                  | 6920                   | +21   | 492   | 99                  | 7968                   | +21   | 491   |
| 9°4050              | 0°004 4910             |       | 9°493 | 9°4100              | 0°004 5914             |       | 9°492 | 9°4150              | 0°004 6941             |       | 9°492 | 9°4200              | 0°004 7989             |       | 9°491 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log y | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log y | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log y | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log y |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|
| 9'4200               | 0'004 7989             | +21   | 9'491 | 9'4250               | 0'004 9059             | +22   | 9'490 | 9'4300               | 0'005 0153             | +22   | 9'489 | 9'4350               | 0'005 1269             | +23   | 9'489 |
| 01                   | 8010                   | +21   | 491   | 51                   | 9081                   | +22   | 490   | 01                   | 0175                   | +22   | 489   | 51                   | 1292                   | +22   | 489   |
| 02                   | 8031                   | +21   | 491   | 52                   | 9103                   | +21   | 490   | 02                   | 0197                   | +22   | 489   | 52                   | 1314                   | +23   | 489   |
| 03                   | 8052                   | +22   | 491   | 53                   | 9124                   | +22   | 490   | 03                   | 0219                   | +22   | 489   | 53                   | 1337                   | +22   | 489   |
| 04                   | 8074                   | +21   | 491   | 54                   | 9146                   | +22   | 490   | 04                   | 0241                   | +22   | 489   | 54                   | 1359                   | +23   | 489   |
| 9'4205               | 0'004 8095             | +21   | 9'491 | 9'4255               | 0'004 9168             | +21   | 9'490 | 9'4305               | 0'005 0263             | +22   | 9'489 | 9'4355               | 0'005 1382             | +23   | 9'489 |
| 06                   | 8110                   | +21   | 491   | 50                   | 9189                   | +22   | 490   | 06                   | 0285                   | +22   | 489   | 56                   | 1405                   | +22   | 489   |
| 07                   | 8137                   | +22   | 491   | 57                   | 9211                   | +22   | 490   | 07                   | 0307                   | +22   | 489   | 57                   | 1427                   | +23   | 488   |
| 08                   | 8159                   | +21   | 491   | 58                   | 9233                   | +21   | 490   | 08                   | 0330                   | +22   | 489   | 58                   | 1450                   | +23   | 488   |
| 09                   | 8180                   | +21   | 491   | 59                   | 9254                   | +22   | 490   | 09                   | 0352                   | +22   | 489   | 59                   | 1473                   | +22   | 488   |
| 9'4210               | 0'004 8201             | +21   | 9'491 | 9'4260               | 0'004 9270             | +22   | 9'490 | 9'4310               | 0'005 0374             | +22   | 9'489 | 9'4360               | 0'005 1495             | +23   | 9'488 |
| 11                   | 8222                   | +22   | 491   | 61                   | 9298                   | +22   | 490   | 11                   | 0396                   | +22   | 489   | 61                   | 1518                   | +23   | 488   |
| 12                   | 8244                   | +21   | 491   | 62                   | 9320                   | +21   | 490   | 12                   | 0418                   | +22   | 489   | 62                   | 1541                   | +22   | 488   |
| 13                   | 8265                   | +21   | 491   | 63                   | 9341                   | +22   | 490   | 13                   | 0441                   | +22   | 489   | 63                   | 1563                   | +23   | 488   |
| 14                   | 8280                   | +22   | 491   | 64                   | 9363                   | +22   | 490   | 14                   | 0463                   | +22   | 489   | 64                   | 1586                   | +23   | 488   |
| 9'4215               | 0'004 8308             | +21   | 9'491 | 9'4265               | 0'004 9385             | +22   | 9'490 | 9'4315               | 0'005 0485             | +22   | 9'489 | 9'4365               | 0'005 1609             | +22   | 9'488 |
| 16                   | 8329                   | +21   | 491   | 66                   | 9407                   | +21   | 490   | 16                   | 0507                   | +23   | 489   | 66                   | 1631                   | +23   | 488   |
| 17                   | 8350                   | +22   | 491   | 67                   | 9428                   | +22   | 490   | 17                   | 0530                   | +22   | 489   | 67                   | 1654                   | +23   | 488   |
| 18                   | 8372                   | +21   | 491   | 68                   | 9450                   | +22   | 490   | 18                   | 0552                   | +22   | 489   | 68                   | 1677                   | +23   | 488   |
| 19                   | 8393                   | +21   | 491   | 69                   | 9472                   | +22   | 490   | 19                   | 0574                   | +22   | 489   | 69                   | 1700                   | +22   | 488   |
| 9'4220               | 0'004 8414             | +22   | 9'491 | 9'4270               | 0'004 9494             | +22   | 9'490 | 9'4320               | 0'005 0596             | +23   | 9'489 | 9'4370               | 0'005 1722             | +23   | 9'488 |
| 21                   | 8436                   | +21   | 491   | 71                   | 9510                   | +21   | 490   | 21                   | 0619                   | +22   | 489   | 71                   | 1745                   | +23   | 488   |
| 22                   | 8457                   | +21   | 491   | 72                   | 9537                   | +22   | 490   | 22                   | 0641                   | +22   | 489   | 72                   | 1768                   | +23   | 488   |
| 23                   | 8478                   | +21   | 490   | 73                   | 9559                   | +22   | 490   | 23                   | 0663                   | +22   | 489   | 73                   | 1791                   | +22   | 488   |
| 24                   | 8500                   | +21   | 490   | 74                   | 9581                   | +22   | 490   | 24                   | 0686                   | +22   | 489   | 74                   | 1813                   | +23   | 488   |
| 9'4225               | 0'004 8521             | +22   | 9'490 | 9'4275               | 0'004 9603             | +22   | 9'490 | 9'4325               | 0'005 0708             | +22   | 9'489 | 9'4375               | 0'005 1836             | +23   | 9'488 |
| 26                   | 8543                   | +21   | 490   | 76                   | 9625                   | +22   | 490   | 26                   | 0730                   | +22   | 489   | 76                   | 1859                   | +23   | 488   |
| 27                   | 8564                   | +21   | 490   | 77                   | 9647                   | +22   | 490   | 27                   | 0753                   | +22   | 489   | 77                   | 1882                   | +23   | 488   |
| 28                   | 8585                   | +22   | 490   | 78                   | 9669                   | +22   | 490   | 28                   | 0775                   | +22   | 489   | 78                   | 1905                   | +23   | 488   |
| 29                   | 8607                   | +21   | 490   | 79                   | 9691                   | +21   | 490   | 29                   | 0797                   | +23   | 489   | 79                   | 1928                   | +22   | 488   |
| 9'4230               | 0'004 8628             | +22   | 9'490 | 9'4280               | 0'004 9712             | +22   | 9'490 | 9'4330               | 0'005 0820             | +22   | 9'489 | 9'4380               | 0'005 1950             | +23   | 9'488 |
| 31                   | 8650                   | +21   | 490   | 81                   | 9734                   | +22   | 490   | 31                   | 0842                   | +22   | 489   | 81                   | 1973                   | +23   | 488   |
| 32                   | 8671                   | +22   | 490   | 82                   | 9759                   | +22   | 490   | 32                   | 0864                   | +23   | 489   | 82                   | 1996                   | +23   | 488   |
| 33                   | 8693                   | +21   | 490   | 83                   | 9788                   | +22   | 490   | 33                   | 0887                   | +22   | 489   | 83                   | 2019                   | +23   | 488   |
| 34                   | 8714                   | +22   | 490   | 84                   | 9800                   | +22   | 490   | 34                   | 0909                   | +23   | 489   | 84                   | 2042                   | +23   | 488   |
| 9'4235               | 0'004 8736             | +21   | 9'490 | 9'4285               | 0'004 9822             | +22   | 9'490 | 9'4335               | 0'005 0932             | +22   | 9'489 | 9'4385               | 0'005 2065             | +23   | 9'488 |
| 36                   | 8757                   | +22   | 490   | 86                   | 9844                   | +22   | 490   | 36                   | 0954                   | +23   | 489   | 86                   | 2088                   | +23   | 488   |
| 37                   | 8779                   | +21   | 490   | 87                   | 9866                   | +22   | 490   | 37                   | 0977                   | +22   | 489   | 87                   | 2111                   | +23   | 488   |
| 38                   | 8800                   | +21   | 490   | 88                   | 9888                   | +22   | 490   | 38                   | 0999                   | +22   | 489   | 88                   | 2134                   | +23   | 488   |
| 39                   | 8822                   | +21   | 490   | 89                   | 9910                   | +22   | 490   | 39                   | 1021                   | +23   | 489   | 89                   | 2156                   | +23   | 488   |
| 9'4240               | 0'004 8843             | +22   | 9'490 | 9'4290               | 0'004 9932             | +22   | 9'490 | 9'4340               | 0'005 1044             | +22   | 9'489 | 9'4390               | 0'005 2179             | +23   | 9'488 |
| 41                   | 8865                   | +21   | 490   | 91                   | 9954                   | +22   | 489   | 41                   | 1066                   | +22   | 489   | 91                   | 2202                   | +23   | 488   |
| 42                   | 8886                   | +22   | 490   | 92                   | 9976                   | +22   | 489   | 42                   | 1089                   | +23   | 489   | 92                   | 2225                   | +23   | 488   |
| 43                   | 8908                   | +22   | 490   | 93                   | 9998                   | +22   | 489   | 43                   | 1111                   | +23   | 489   | 93                   | 2248                   | +23   | 488   |
| 44                   | 8930                   | +21   | 490   | 94                   | 005 0020               | +22   | 489   | 44                   | 1134                   | +22   | 489   | 94                   | 2271                   | +23   | 488   |
| 9'4245               | 0'004 8951             | +22   | 9'490 | 9'4295               | 0'005 0042             | +22   | 9'489 | 9'4345               | 0'005 1156             | +23   | 9'489 | 9'4395               | 0'005 2294             | +23   | 9'488 |
| 46                   | 8973                   | +21   | 490   | 96                   | 0004                   | +22   | 489   | 46                   | 1179                   | +22   | 489   | 96                   | 2317                   | +23   | 488   |
| 47                   | 8994                   | +22   | 490   | 97                   | 0086                   | +22   | 489   | 47                   | 1201                   | +23   | 489   | 97                   | 2340                   | +23   | 488   |
| 48                   | 9016                   | +22   | 490   | 98                   | 0108                   | +22   | 489   | 48                   | 1224                   | +23   | 489   | 98                   | 2363                   | +23   | 488   |
| 49                   | 9038                   | +21   | 490   | 99                   | 0130                   | +23   | 489   | 49                   | 1247                   | +22   | 489   | 99                   | 2386                   | +23   | 488   |
| 9'4250               | 0'004 9059             |       | 9'490 | 9'4300               | 0'005 0153             |       | 9'489 | 9'4350               | 0'005 1269             |       | 9'489 | 9'4400               | 0'005 2409             |       | 9'488 |





| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log y | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log y | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log y | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log y |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|
| 9'4600               | 0'005 7217             | +25   | 9'485 | 9'4050               | 0'005 8482             | +26   | 9'484 | 9'4700               | 0'005 9775             | +26   | 9'483 | 9'4750               | 0'006 1094             | +26   | 9'482 |
| 01                   | 7242                   | +25   | 485   | 51                   | 8508                   | +26   | 484   | 01                   | 9801                   | +26   | 483   | 51                   | 1120                   | +27   | 482   |
| 02                   | 7267                   | +25   | 485   | 52                   | 8534                   | +25   | 484   | 02                   | 9827                   | +26   | 483   | 52                   | 1147                   | +27   | 482   |
| 03                   | 7292                   | +25   | 485   | 53                   | 8559                   | +26   | 484   | 03                   | 9853                   | +26   | 483   | 53                   | 1174                   | +27   | 482   |
| 04                   | 7317                   | +25   | 485   | 54                   | 8585                   | +25   | 484   | 04                   | 9879                   | +26   | 483   | 54                   | 1201                   | +26   | 482   |
| 9'4605               | 0'005 7342             | +25   | 9'484 | 9'4055               | 0'005 8610             | +26   | 9'484 | 9'4705               | 0'005 9905             | +26   | 9'483 | 9'4755               | 0'006 1227             | +27   | 9'482 |
| 06                   | 7397                   | +25   | 484   | 56                   | 8636                   | +26   | 484   | 06                   | 9931                   | +27   | 483   | 56                   | 1254                   | +27   | 482   |
| 07                   | 7392                   | +25   | 484   | 57                   | 8662                   | +25   | 484   | 07                   | 9958                   | +26   | 483   | 57                   | 1281                   | +26   | 482   |
| 08                   | 7417                   | +26   | 484   | 58                   | 8687                   | +26   | 484   | 08                   | 9984                   | +26   | 483   | 58                   | 1307                   | +27   | 482   |
| 09                   | 7443                   | +25   | 484   | 59                   | 8713                   | +26   | 484   | 09                   | 006 0010               | +26   | 483   | 59                   | 1334                   | +27   | 482   |
| 9'4610               | 0'005 7468             | +25   | 9'484 | 9'4060               | 0'005 8739             | +25   | 9'484 | 9'4710               | 0'006 0030             | +27   | 9'483 | 9'4760               | 0'006 1301             | +27   | 9'482 |
| 11                   | 7493                   | +25   | 484   | 61                   | 8764                   | +26   | 484   | 11                   | 0003                   | +26   | 483   | 61                   | 1388                   | +27   | 482   |
| 12                   | 7518                   | +25   | 484   | 62                   | 8790                   | +26   | 484   | 12                   | 0089                   | +26   | 483   | 62                   | 1415                   | +26   | 482   |
| 13                   | 7543                   | +25   | 484   | 63                   | 8816                   | +26   | 483   | 13                   | 0115                   | +26   | 483   | 63                   | 1441                   | +27   | 482   |
| 14                   | 7568                   | +26   | 484   | 64                   | 8842                   | +25   | 483   | 14                   | 0141                   | +27   | 483   | 64                   | 1468                   | +27   | 482   |
| 9'4615               | 0'005 7594             | +25   | 9'484 | 9'4065               | 0'005 8867             | +26   | 9'483 | 9'4715               | 0'006 0168             | +26   | 9'483 | 9'4765               | 0'006 1495             | +27   | 9'482 |
| 16                   | 7619                   | +25   | 484   | 66                   | 8893                   | +26   | 483   | 16                   | 0294                   | +26   | 483   | 66                   | 1522                   | +27   | 482   |
| 17                   | 7644                   | +25   | 484   | 67                   | 8919                   | +26   | 483   | 17                   | 0320                   | +26   | 483   | 67                   | 1549                   | +26   | 482   |
| 18                   | 7669                   | +26   | 484   | 68                   | 8945                   | +25   | 483   | 18                   | 0346                   | +26   | 482   | 68                   | 1575                   | +27   | 482   |
| 19                   | 7695                   | +25   | 484   | 69                   | 8970                   | +26   | 483   | 19                   | 0373                   | +27   | 482   | 69                   | 1602                   | +27   | 482   |
| 9'4620               | 0'005 7720             | +25   | 9'484 | 9'4070               | 0'005 8996             | +26   | 9'483 | 9'4720               | 0'006 0299             | +26   | 9'482 | 9'4770               | 0'006 1629             | +27   | 9'482 |
| 21                   | 7745                   | +25   | 484   | 71                   | 9022                   | +26   | 483   | 21                   | 0325                   | +27   | 482   | 71                   | 1656                   | +27   | 482   |
| 22                   | 7770                   | +26   | 484   | 72                   | 9048                   | +25   | 483   | 22                   | 0352                   | +26   | 482   | 72                   | 1683                   | +27   | 482   |
| 23                   | 7796                   | +25   | 484   | 73                   | 9073                   | +26   | 483   | 23                   | 0378                   | +26   | 482   | 73                   | 1710                   | +27   | 482   |
| 24                   | 7821                   | +25   | 484   | 74                   | 9099                   | +26   | 483   | 24                   | 0404                   | +27   | 482   | 74                   | 1737                   | +27   | 481   |
| 9'4625               | 0'005 7846             | +26   | 9'484 | 9'4075               | 0'005 9125             | +26   | 9'483 | 9'4725               | 0'006 0431             | +26   | 9'482 | 9'4775               | 0'006 1764             | +27   | 9'481 |
| 26                   | 7872                   | +25   | 484   | 76                   | 9151                   | +26   | 483   | 26                   | 0457                   | +26   | 482   | 76                   | 1791                   | +27   | 481   |
| 27                   | 7897                   | +25   | 484   | 77                   | 9177                   | +26   | 483   | 27                   | 0484                   | +26   | 482   | 77                   | 1818                   | +27   | 481   |
| 28                   | 7922                   | +26   | 484   | 78                   | 9203                   | +26   | 483   | 28                   | 0510                   | +26   | 482   | 78                   | 1845                   | +27   | 481   |
| 29                   | 7948                   | +25   | 484   | 79                   | 9229                   | +26   | 483   | 29                   | 0536                   | +27   | 482   | 79                   | 1872                   | +27   | 481   |
| 9'4630               | 0'005 7973             | +25   | 9'484 | 9'4080               | 0'005 9255             | +25   | 9'483 | 9'4730               | 0'006 0563             | +26   | 9'482 | 9'4780               | 0'006 1899             | +27   | 9'481 |
| 31                   | 7998                   | +26   | 484   | 81                   | 9280                   | +26   | 483   | 31                   | 0589                   | +27   | 482   | 81                   | 1926                   | +27   | 481   |
| 32                   | 8024                   | +25   | 484   | 82                   | 9306                   | +26   | 483   | 32                   | 0616                   | +26   | 482   | 82                   | 1953                   | +27   | 481   |
| 33                   | 8049                   | +26   | 484   | 83                   | 9332                   | +26   | 483   | 33                   | 0642                   | +27   | 482   | 83                   | 1980                   | +27   | 481   |
| 34                   | 8075                   | +25   | 484   | 84                   | 9358                   | +26   | 483   | 34                   | 0669                   | +26   | 482   | 84                   | 2007                   | +27   | 481   |
| 9'4635               | 0'005 8100             | +25   | 9'484 | 9'4085               | 0'005 9384             | +26   | 9'483 | 9'4735               | 0'006 0695             | +27   | 9'482 | 9'4785               | 0'006 2034             | +27   | 9'481 |
| 36                   | 8125                   | +26   | 484   | 86                   | 9410                   | +26   | 483   | 36                   | 0722                   | +26   | 482   | 86                   | 2061                   | +27   | 481   |
| 37                   | 8151                   | +25   | 484   | 87                   | 9436                   | +26   | 483   | 37                   | 0748                   | +27   | 482   | 87                   | 2088                   | +27   | 481   |
| 38                   | 8176                   | +26   | 484   | 88                   | 9462                   | +26   | 483   | 38                   | 0775                   | +26   | 482   | 88                   | 2115                   | +27   | 481   |
| 39                   | 8202                   | +25   | 484   | 89                   | 9488                   | +26   | 483   | 39                   | 0801                   | +27   | 482   | 89                   | 2142                   | +27   | 481   |
| 9'4640               | 0'005 8227             | +26   | 9'484 | 9'4090               | 0'005 9514             | +26   | 9'483 | 9'4740               | 0'006 0828             | +26   | 9'482 | 9'4790               | 0'006 2169             | +27   | 9'481 |
| 41                   | 8253                   | +25   | 484   | 91                   | 9540                   | +26   | 483   | 41                   | 0854                   | +27   | 482   | 91                   | 2196                   | +27   | 481   |
| 42                   | 8278                   | +26   | 484   | 92                   | 9566                   | +26   | 483   | 42                   | 0881                   | +26   | 482   | 92                   | 2223                   | +27   | 481   |
| 43                   | 8304                   | +25   | 484   | 93                   | 9592                   | +26   | 483   | 43                   | 0907                   | +27   | 482   | 93                   | 2250                   | +27   | 481   |
| 44                   | 8329                   | +26   | 484   | 94                   | 9618                   | +26   | 483   | 44                   | 0934                   | +27   | 482   | 94                   | 2277                   | +28   | 481   |
| 9'4645               | 0'005 8355             | +25   | 9'484 | 9'4095               | 0'005 9644             | +26   | 9'483 | 9'4745               | 0'006 0961             | +26   | 9'482 | 9'4795               | 0'006 2305             | +27   | 9'481 |
| 46                   | 8380                   | +26   | 484   | 96                   | 9670                   | +26   | 483   | 46                   | 0987                   | +27   | 482   | 96                   | 2332                   | +27   | 481   |
| 47                   | 8406                   | +25   | 484   | 97                   | 9696                   | +26   | 483   | 47                   | 1014                   | +27   | 482   | 97                   | 2359                   | +27   | 481   |
| 48                   | 8431                   | +26   | 484   | 98                   | 9722                   | +27   | 483   | 48                   | 1041                   | +26   | 482   | 98                   | 2386                   | +27   | 481   |
| 49                   | 8457                   | +25   | 484   | 99                   | 9749                   | +26   | 483   | 49                   | 1067                   | +27   | 482   | 99                   | 2413                   | +28   | 481   |
| 9'4650               | 0'005 8482             |       | 9'484 | 9'4700               | 0'005 9775             |       | 9'483 | 9'4750               | 0'006 1094             |       | 9'482 | 9'4800               | 0'006 2441             |       | 9'481 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|
| 9.4800               | 0.006 2441             | +27   | 9.481 | 9.4850               | 0.006 3815             | +28   | 9.480 | 9.4900               | 0.006 5218             | +29   | 9.479 | 9.4950               | 0.006 6651             | +29   | 9.478 |
| 01                   | 2468                   | +27   | 481   | 51                   | 3843                   | +28   | 480   | 01                   | 5247                   | +28   | 479   | 51                   | 6680                   | +29   | 478   |
| 02                   | 2495                   | +27   | 481   | 52                   | 3871                   | +28   | 480   | 02                   | 5275                   | +29   | 479   | 52                   | 6709                   | +29   | 478   |
| 03                   | 2522                   | +27   | 481   | 53                   | 3899                   | +27   | 480   | 03                   | 5304                   | +28   | 479   | 53                   | 6738                   | +29   | 478   |
| 04                   | 2549                   | +28   | 481   | 54                   | 3920                   | +28   | 480   | 04                   | 5332                   | +28   | 479   | 54                   | 6767                   | +29   | 478   |
| 9.4805               | 0.006 2577             | +27   | 9.481 | 9.4855               | 0.006 3954             | +28   | 9.480 | 9.4905               | 0.006 5360             | +29   | 9.479 | 9.4955               | 0.006 6796             | +29   | 9.478 |
| 06                   | 2604                   | +27   | 481   | 56                   | 3982                   | +28   | 480   | 06                   | 5389                   | +28   | 479   | 56                   | 6825                   | +29   | 478   |
| 07                   | 2631                   | +28   | 481   | 57                   | 4010                   | +28   | 480   | 07                   | 5417                   | +29   | 479   | 57                   | 6854                   | +29   | 478   |
| 08                   | 2659                   | +27   | 481   | 58                   | 4038                   | +28   | 480   | 08                   | 5446                   | +28   | 479   | 58                   | 6883                   | +29   | 478   |
| 09                   | 2686                   | +27   | 481   | 59                   | 4066                   | +28   | 480   | 09                   | 5474                   | +29   | 479   | 59                   | 6912                   | +29   | 478   |
| 9.4810               | 0.006 2713             | +28   | 9.481 | 9.4860               | 0.006 4094             | +27   | 9.480 | 9.4910               | 0.006 5503             | +28   | 9.479 | 9.4960               | 0.006 6941             | +29   | 9.478 |
| 11                   | 2741                   | +27   | 481   | 61                   | 4121                   | +28   | 480   | 11                   | 5531                   | +29   | 479   | 61                   | 6970                   | +29   | 478   |
| 12                   | 2768                   | +27   | 481   | 62                   | 4149                   | +28   | 480   | 12                   | 5560                   | +28   | 479   | 62                   | 6999                   | +29   | 478   |
| 13                   | 2795                   | +28   | 481   | 63                   | 4177                   | +28   | 480   | 13                   | 5588                   | +29   | 479   | 63                   | 7028                   | +29   | 478   |
| 14                   | 2823                   | +27   | 481   | 64                   | 4205                   | +28   | 480   | 14                   | 5617                   | +28   | 479   | 64                   | 7057                   | +29   | 478   |
| 9.4815               | 0.006 2850             | +27   | 9.481 | 9.4865               | 0.006 4233             | +28   | 9.480 | 9.4915               | 0.006 5645             | +29   | 9.479 | 9.4965               | 0.006 7086             | +29   | 9.478 |
| 16                   | 2877                   | +28   | 481   | 66                   | 4261                   | +28   | 480   | 16                   | 5674                   | +29   | 479   | 66                   | 7115                   | +29   | 478   |
| 17                   | 2905                   | +27   | 481   | 67                   | 4289                   | +28   | 480   | 17                   | 5702                   | +29   | 479   | 67                   | 7144                   | +30   | 478   |
| 18                   | 2932                   | +28   | 481   | 68                   | 4317                   | +28   | 480   | 18                   | 5731                   | +28   | 479   | 68                   | 7174                   | +29   | 478   |
| 19                   | 2960                   | +27   | 481   | 69                   | 4345                   | +28   | 480   | 19                   | 5759                   | +29   | 479   | 69                   | 7203                   | +29   | 478   |
| 9.4820               | 0.006 2987             | +27   | 9.481 | 9.4870               | 0.006 4373             | +28   | 9.480 | 9.4920               | 0.006 5788             | +28   | 9.479 | 9.4970               | 0.006 7232             | +29   | 9.478 |
| 21                   | 3014                   | +28   | 481   | 71                   | 4401                   | +28   | 480   | 21                   | 5816                   | +29   | 479   | 71                   | 7261                   | +29   | 478   |
| 22                   | 3042                   | +27   | 481   | 72                   | 4429                   | +28   | 480   | 22                   | 5845                   | +29   | 479   | 72                   | 7290                   | +29   | 478   |
| 23                   | 3069                   | +28   | 481   | 73                   | 4457                   | +28   | 480   | 23                   | 5874                   | +28   | 479   | 73                   | 7319                   | +29   | 478   |
| 24                   | 3097                   | +27   | 481   | 74                   | 4485                   | +28   | 480   | 24                   | 5902                   | +29   | 479   | 74                   | 7349                   | +30   | 478   |
| 9.4825               | 0.006 3124             | +28   | 9.481 | 9.4875               | 0.006 4513             | +28   | 9.480 | 9.4925               | 0.006 5931             | +29   | 9.479 | 9.4975               | 0.006 7378             | +29   | 9.478 |
| 26                   | 3152                   | +27   | 481   | 76                   | 4541                   | +28   | 480   | 26                   | 5960                   | +28   | 479   | 76                   | 7407                   | +29   | 478   |
| 27                   | 3179                   | +28   | 481   | 77                   | 4569                   | +29   | 480   | 27                   | 5988                   | +29   | 479   | 77                   | 7436                   | +30   | 478   |
| 28                   | 3207                   | +27   | 480   | 78                   | 4598                   | +28   | 480   | 28                   | 6017                   | +29   | 479   | 78                   | 7466                   | +29   | 478   |
| 29                   | 3234                   | +28   | 480   | 79                   | 4626                   | +28   | 480   | 29                   | 6046                   | +28   | 479   | 79                   | 7495                   | +29   | 478   |
| 9.4830               | 0.006 3262             | +28   | 9.480 | 9.4880               | 0.006 4654             | +28   | 9.480 | 9.4930               | 0.006 6074             | +29   | 9.479 | 9.4980               | 0.006 7524             | +30   | 9.478 |
| 31                   | 3290                   | +27   | 480   | 81                   | 4682                   | +28   | 479   | 31                   | 6103                   | +29   | 479   | 81                   | 7554                   | +29   | 478   |
| 32                   | 3317                   | +28   | 480   | 82                   | 4710                   | +28   | 479   | 32                   | 6132                   | +28   | 478   | 82                   | 7583                   | +29   | 478   |
| 33                   | 3345                   | +27   | 480   | 83                   | 4738                   | +28   | 479   | 33                   | 6160                   | +29   | 478   | 83                   | 7612                   | +29   | 477   |
| 34                   | 3372                   | +28   | 480   | 84                   | 4766                   | +28   | 479   | 34                   | 6189                   | +29   | 478   | 84                   | 7641                   | +30   | 477   |
| 9.4835               | 0.006 3400             | +27   | 9.480 | 9.4885               | 0.006 4794             | +29   | 9.479 | 9.4935               | 0.006 6218             | +29   | 9.478 | 9.4985               | 0.006 7671             | +29   | 9.477 |
| 36                   | 3427                   | +28   | 480   | 86                   | 4823                   | +28   | 479   | 36                   | 6247                   | +29   | 478   | 86                   | 7700                   | +29   | 477   |
| 37                   | 3455                   | +28   | 480   | 87                   | 4851                   | +28   | 479   | 37                   | 6276                   | +28   | 478   | 87                   | 7730                   | +30   | 477   |
| 38                   | 3483                   | +27   | 480   | 88                   | 4879                   | +28   | 479   | 38                   | 6304                   | +29   | 478   | 88                   | 7759                   | +29   | 477   |
| 39                   | 3510                   | +28   | 480   | 89                   | 4907                   | +29   | 479   | 39                   | 6333                   | +29   | 478   | 89                   | 7788                   | +30   | 477   |
| 9.4840               | 0.006 3538             | +28   | 9.480 | 9.4890               | 0.006 4936             | +28   | 9.479 | 9.4940               | 0.006 6362             | +29   | 9.478 | 9.4990               | 0.006 7818             | +29   | 9.477 |
| 41                   | 3566                   | +27   | 480   | 91                   | 4964                   | +28   | 479   | 41                   | 6391                   | +29   | 478   | 91                   | 7847                   | +30   | 477   |
| 42                   | 3593                   | +28   | 480   | 92                   | 4992                   | +28   | 479   | 42                   | 6420                   | +28   | 478   | 92                   | 7877                   | +29   | 477   |
| 43                   | 3621                   | +28   | 480   | 93                   | 5020                   | +29   | 479   | 43                   | 6448                   | +29   | 478   | 93                   | 7906                   | +30   | 477   |
| 44                   | 3649                   | +28   | 480   | 94                   | 5049                   | +28   | 479   | 44                   | 6477                   | +29   | 478   | 94                   | 7936                   | +29   | 477   |
| 9.4845               | 0.006 3677             | +27   | 9.480 | 9.4895               | 0.006 5077             | +28   | 9.479 | 9.4945               | 0.006 6506             | +29   | 9.478 | 9.4995               | 0.006 7965             | +29   | 9.477 |
| 46                   | 3704                   | +28   | 480   | 96                   | 5105                   | +28   | 479   | 46                   | 6535                   | +29   | 478   | 96                   | 7994                   | +30   | 477   |
| 47                   | 3732                   | +28   | 480   | 97                   | 5133                   | +29   | 479   | 47                   | 6564                   | +29   | 478   | 97                   | 8024                   | +29   | 477   |
| 48                   | 3760                   | +27   | 480   | 98                   | 5162                   | +28   | 479   | 48                   | 6593                   | +29   | 478   | 98                   | 8053                   | +30   | 477   |
| 49                   | 3787                   | +28   | 480   | 99                   | 5190                   | +28   | 479   | 49                   | 6622                   | +29   | 478   | 99                   | 8083                   | +30   | 477   |
| 9.4850               | 0.006 3815             |       | 9.480 | 9.4900               | 0.006 5218             |       | 9.479 | 9.4950               | 0.006 6651             |       | 9.478 | 9.5000               | 0.006 8113             |       | 9.477 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g |
|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|
| 9'5000               | 0'006 8113              | +29   | 9'477 | 9'5050               | 0'006 9604              | +31   | 9'476 | 9'5100               | 0'007 1127              | +31   | 9'475 | 9'5150               | 0'007 2680              | +32   | 9'474 |
| 01                   | 8142                    | +30   | 477   | 51                   | 9035                    | +30   | 476   | 01                   | 1158                    | +30   | 475   | 51                   | 2712                    | +31   | 474   |
| 02                   | 8172                    | +29   | 477   | 52                   | 9005                    | +30   | 476   | 02                   | 1188                    | +31   | 475   | 52                   | 2743                    | +32   | 474   |
| 03                   | 8201                    | +30   | 477   | 53                   | 9095                    | +30   | 476   | 03                   | 1219                    | +31   | 475   | 53                   | 2775                    | +31   | 474   |
| 04                   | 8231                    | +29   | 477   | 54                   | 9725                    | +30   | 476   | 04                   | 1250                    | +31   | 475   | 54                   | 2806                    | +32   | 474   |
| 9'5005               | 0'006 8260              | +30   | 9'477 | 9'5055               | 0'006 9755              | +30   | 9'476 | 9'5105               | 0'007 1281              | +31   | 9'475 | 9'5155               | 0'007 2838              | +31   | 9'474 |
| 06                   | 8290                    | +30   | 477   | 56                   | 9785                    | +31   | 476   | 06                   | 1312                    | +30   | 475   | 56                   | 2869                    | +31   | 474   |
| 07                   | 8320                    | +29   | 477   | 57                   | 9816                    | +30   | 476   | 07                   | 1342                    | +31   | 475   | 57                   | 2900                    | +32   | 474   |
| 08                   | 8349                    | +30   | 477   | 58                   | 9846                    | +30   | 476   | 08                   | 1373                    | +31   | 475   | 58                   | 2932                    | +31   | 474   |
| 09                   | 8379                    | +29   | 477   | 59                   | 9876                    | +30   | 476   | 09                   | 1404                    | +31   | 475   | 59                   | 2963                    | +32   | 474   |
| 9'5010               | 0'006 8408              | +30   | 9'477 | 9'5060               | 0'006 9906              | +31   | 9'476 | 9'5110               | 0'007 1435              | +31   | 9'475 | 9'5160               | 0'007 2995              | +31   | 9'474 |
| 11                   | 8438                    | +30   | 477   | 61                   | 9937                    | +30   | 476   | 11                   | 1466                    | +31   | 475   | 61                   | 3026                    | +32   | 474   |
| 12                   | 8468                    | +29   | 477   | 62                   | 9907                    | +30   | 476   | 12                   | 1497                    | +31   | 475   | 62                   | 3058                    | +32   | 474   |
| 13                   | 8497                    | +30   | 477   | 63                   | 9997                    | +31   | 476   | 13                   | 1528                    | +31   | 475   | 63                   | 3090                    | +31   | 474   |
| 14                   | 8527                    | +30   | 477   | 64                   | 007 0028                | +30   | 476   | 14                   | 1559                    | +31   | 475   | 64                   | 3121                    | +32   | 474   |
| 9'5015               | 0'006 8557              | +30   | 9'477 | 9'5065               | 0'007 0058              | +30   | 9'476 | 9'5115               | 0'007 1590              | +31   | 9'475 | 9'5165               | 0'007 3153              | +31   | 9'474 |
| 16                   | 8587                    | +29   | 477   | 66                   | 0088                    | +31   | 476   | 16                   | 1621                    | +31   | 475   | 66                   | 3184                    | +32   | 474   |
| 17                   | 8616                    | +30   | 477   | 67                   | 0119                    | +30   | 476   | 17                   | 1652                    | +31   | 475   | 67                   | 3216                    | +31   | 474   |
| 18                   | 8646                    | +30   | 477   | 68                   | 0149                    | +30   | 476   | 18                   | 1683                    | +31   | 475   | 68                   | 3247                    | +32   | 474   |
| 19                   | 8676                    | +30   | 477   | 69                   | 0179                    | +31   | 476   | 19                   | 1714                    | +31   | 475   | 69                   | 3279                    | +32   | 474   |
| 9'5020               | 0'006 8700              | +29   | 9'477 | 9'5070               | 0'007 0210              | +30   | 9'476 | 9'5120               | 0'007 1745              | +31   | 9'475 | 9'5170               | 0'007 3311              | +31   | 9'474 |
| 21                   | 8735                    | +30   | 477   | 71                   | 0240                    | +30   | 476   | 21                   | 1776                    | +31   | 475   | 71                   | 3342                    | +32   | 474   |
| 22                   | 8765                    | +30   | 477   | 72                   | 0270                    | +31   | 476   | 22                   | 1807                    | +31   | 475   | 72                   | 3374                    | +32   | 474   |
| 23                   | 8795                    | +30   | 477   | 73                   | 0301                    | +30   | 476   | 23                   | 1838                    | +31   | 475   | 73                   | 3406                    | +31   | 474   |
| 24                   | 8825                    | +30   | 477   | 74                   | 0331                    | +31   | 476   | 24                   | 1869                    | +31   | 475   | 74                   | 3437                    | +32   | 473   |
| 9'5025               | 0'006 8855              | +29   | 9'477 | 9'5075               | 0'007 0362              | +30   | 9'476 | 9'5125               | 0'007 1900              | +31   | 9'475 | 9'5175               | 0'007 3469              | +32   | 9'473 |
| 26                   | 8884                    | +30   | 477   | 76                   | 0392                    | +31   | 476   | 26                   | 1931                    | +31   | 475   | 76                   | 3501                    | +32   | 473   |
| 27                   | 8914                    | +30   | 477   | 77                   | 0423                    | +30   | 476   | 27                   | 1962                    | +31   | 475   | 77                   | 3533                    | +31   | 473   |
| 28                   | 8944                    | +30   | 477   | 78                   | 0453                    | +31   | 476   | 28                   | 1993                    | +31   | 474   | 78                   | 3564                    | +32   | 473   |
| 29                   | 8974                    | +30   | 477   | 79                   | 0484                    | +31   | 476   | 29                   | 2024                    | +31   | 474   | 79                   | 3596                    | +32   | 473   |
| 9'5030               | 0'006 9004              | +30   | 9'477 | 9'5080               | 0'007 0514              | +31   | 9'476 | 9'5130               | 0'007 2055              | +31   | 9'474 | 9'5180               | 0'007 3628              | +32   | 9'473 |
| 31                   | 9034                    | +30   | 477   | 81                   | 0545                    | +30   | 475   | 31                   | 2086                    | +32   | 474   | 81                   | 3660                    | +31   | 473   |
| 32                   | 9064                    | +30   | 476   | 82                   | 0575                    | +31   | 475   | 32                   | 2118                    | +31   | 474   | 82                   | 3691                    | +32   | 473   |
| 33                   | 9094                    | +30   | 476   | 83                   | 0606                    | +30   | 475   | 33                   | 2149                    | +31   | 474   | 83                   | 3723                    | +32   | 473   |
| 34                   | 9124                    | +30   | 476   | 84                   | 0636                    | +31   | 475   | 34                   | 2180                    | +31   | 474   | 84                   | 3755                    | +32   | 473   |
| 9'5035               | 0'006 9154              | +30   | 9'476 | 9'5085               | 0'007 0667              | +30   | 9'475 | 9'5135               | 0'007 2211              | +31   | 9'474 | 9'5185               | 0'007 3787              | +32   | 9'473 |
| 36                   | 9184                    | +30   | 476   | 86                   | 0697                    | +31   | 475   | 36                   | 2242                    | +31   | 474   | 86                   | 3819                    | +31   | 473   |
| 37                   | 9214                    | +30   | 476   | 87                   | 0728                    | +31   | 475   | 37                   | 2273                    | +32   | 474   | 87                   | 3850                    | +32   | 473   |
| 38                   | 9244                    | +30   | 476   | 88                   | 0759                    | +30   | 475   | 38                   | 2305                    | +31   | 474   | 88                   | 3882                    | +32   | 473   |
| 39                   | 9274                    | +30   | 476   | 89                   | 0789                    | +31   | 475   | 39                   | 2336                    | +31   | 474   | 89                   | 3914                    | +32   | 473   |
| 9'5040               | 0'006 9304              | +30   | 9'476 | 9'5090               | 0'007 0820              | +31   | 9'475 | 9'5140               | 0'007 2367              | +31   | 9'474 | 9'5190               | 0'007 3946              | +32   | 9'473 |
| 41                   | 9334                    | +30   | 476   | 91                   | 0851                    | +30   | 475   | 41                   | 2398                    | +32   | 474   | 91                   | 3978                    | +32   | 473   |
| 42                   | 9364                    | +30   | 476   | 92                   | 0881                    | +31   | 475   | 42                   | 2430                    | +31   | 474   | 92                   | 4010                    | +32   | 473   |
| 43                   | 9394                    | +30   | 476   | 93                   | 0912                    | +30   | 475   | 43                   | 2461                    | +31   | 474   | 93                   | 4042                    | +32   | 473   |
| 44                   | 9424                    | +30   | 476   | 94                   | 0942                    | +31   | 475   | 44                   | 2492                    | +32   | 474   | 94                   | 4074                    | +32   | 473   |
| 9'5045               | 0'006 9454              | +30   | 9'476 | 9'5095               | 0'007 0973              | +31   | 9'475 | 9'5145               | 0'007 2524              | +31   | 9'474 | 9'5195               | 0'007 4106              | +32   | 9'473 |
| 46                   | 9484                    | +30   | 476   | 96                   | 1004                    | +31   | 475   | 46                   | 2555                    | +31   | 474   | 96                   | 4138                    | +32   | 473   |
| 47                   | 9514                    | +30   | 476   | 97                   | 1035                    | +30   | 475   | 47                   | 2586                    | +32   | 474   | 97                   | 4170                    | +32   | 473   |
| 48                   | 9544                    | +30   | 476   | 98                   | 1065                    | +31   | 475   | 48                   | 2618                    | +31   | 474   | 98                   | 4202                    | +32   | 473   |
| 49                   | 9574                    | +30   | 476   | 99                   | 1096                    | +31   | 475   | 49                   | 2649                    | +31   | 474   | 99                   | 4234                    | +32   | 473   |
| 9'5050               | 0'006 9604              |       | 9'476 | 9'5100               | 0'007 1127              |       | 9'475 | 9'5150               | 0'007 2680              |       | 9'474 | 9'5200               | 0'007 4260              |       | 9'473 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  |
|----------------------|-------------------------|-------|--------|----------------------|-------------------------|-------|--------|----------------------|-------------------------|-------|--------|----------------------|-------------------------|-------|--------|
| 9° 5200              | 0° 007 4266             | +32   | 9° 473 | 9° 5250              | 0° 007 5883             | +33   | 9° 472 | 9° 5300              | 0° 007 7534             | +33   | 9° 471 | 9° 5350              | 0° 007 9217             | +34   | 9° 470 |
| 01                   | 4298                    | +32   | 473    | 51                   | 5916                    | +33   | 472    | 01                   | 7507                    | +33   | 471    | 51                   | 9251                    | +34   | 470    |
| 02                   | 4330                    | +32   | 473    | 52                   | 5949                    | +33   | 472    | 02                   | 7600                    | +34   | 471    | 52                   | 9285                    | +34   | 469    |
| 03                   | 4362                    | +32   | 473    | 53                   | 5981                    | +33   | 472    | 03                   | 7634                    | +33   | 471    | 53                   | 9319                    | +34   | 469    |
| 04                   | 4394                    | +32   | 473    | 54                   | 6014                    | +33   | 472    | 04                   | 7667                    | +33   | 471    | 54                   | 9353                    | +34   | 469    |
| 9° 5205              | 0° 007 4426             | +32   | 9° 473 | 9° 5255              | 0° 007 6047             | +33   | 9° 472 | 9° 5305              | 0° 007 7700             | +34   | 9° 471 | 9° 5355              | 0° 007 9387             | +35   | 9° 469 |
| 06                   | 4458                    | +32   | 473    | 56                   | 6080                    | +32   | 472    | 06                   | 7734                    | +33   | 471    | 56                   | 9422                    | +34   | 469    |
| 07                   | 4490                    | +32   | 473    | 57                   | 6112                    | +33   | 472    | 07                   | 7767                    | +34   | 471    | 57                   | 9456                    | +34   | 469    |
| 08                   | 4522                    | +32   | 473    | 58                   | 6145                    | +33   | 472    | 08                   | 7801                    | +33   | 471    | 58                   | 9490                    | +34   | 469    |
| 09                   | 4554                    | +32   | 473    | 59                   | 6178                    | +33   | 472    | 09                   | 7834                    | +33   | 470    | 59                   | 9524                    | +34   | 469    |
| 9° 5210              | 0° 007 4587             | +32   | 9° 473 | 9° 5260              | 0° 007 6211             | +32   | 9° 472 | 9° 5310              | 0° 007 7868             | +33   | 9° 470 | 9° 5360              | 0° 007 9558             | +34   | 9° 469 |
| 11                   | 4619                    | +32   | 473    | 61                   | 6243                    | +33   | 472    | 11                   | 7901                    | +34   | 470    | 61                   | 9592                    | +34   | 469    |
| 12                   | 4651                    | +32   | 473    | 62                   | 6276                    | +33   | 472    | 12                   | 7935                    | +33   | 470    | 62                   | 9626                    | +34   | 469    |
| 13                   | 4683                    | +32   | 473    | 63                   | 6309                    | +33   | 472    | 13                   | 7968                    | +33   | 470    | 63                   | 9661                    | +35   | 469    |
| 14                   | 4715                    | +33   | 473    | 64                   | 6342                    | +33   | 472    | 14                   | 8002                    | +33   | 470    | 64                   | 9695                    | +34   | 469    |
| 9° 5215              | 0° 007 4748             | +32   | 9° 473 | 9° 5265              | 0° 007 6375             | +33   | 9° 471 | 9° 5315              | 0° 007 8035             | +34   | 9° 470 | 9° 5365              | 0° 007 9729             | +34   | 9° 469 |
| 16                   | 4780                    | +32   | 473    | 66                   | 6408                    | +33   | 471    | 16                   | 8069                    | +33   | 470    | 66                   | 9763                    | +34   | 469    |
| 17                   | 4812                    | +32   | 473    | 67                   | 6441                    | +33   | 471    | 17                   | 8102                    | +33   | 470    | 67                   | 9797                    | +35   | 469    |
| 18                   | 4844                    | +32   | 473    | 68                   | 6474                    | +32   | 471    | 18                   | 8136                    | +33   | 470    | 68                   | 9832                    | +34   | 469    |
| 19                   | 4877                    | +32   | 473    | 69                   | 6506                    | +33   | 471    | 19                   | 8169                    | +34   | 470    | 69                   | 9866                    | +34   | 469    |
| 9° 5220              | 0° 007 4909             | +32   | 9° 472 | 9° 5270              | 0° 007 6539             | +33   | 9° 471 | 9° 5320              | 0° 007 8203             | +34   | 9° 470 | 9° 5370              | 0° 007 9900             | +34   | 9° 469 |
| 21                   | 4941                    | +32   | 472    | 71                   | 6572                    | +33   | 471    | 21                   | 8237                    | +33   | 470    | 71                   | 9934                    | +35   | 469    |
| 22                   | 4973                    | +32   | 472    | 72                   | 6605                    | +33   | 471    | 22                   | 8270                    | +34   | 470    | 72                   | 9969                    | +34   | 469    |
| 23                   | 5006                    | +32   | 472    | 73                   | 6638                    | +33   | 471    | 23                   | 8304                    | +34   | 470    | 73                   | 008 0003                | +34   | 469    |
| 24                   | 5038                    | +32   | 472    | 74                   | 6671                    | +33   | 471    | 24                   | 8338                    | +33   | 470    | 74                   | 0037                    | +35   | 469    |
| 9° 5225              | 0° 007 5070             | +33   | 9° 472 | 9° 5275              | 0° 007 6704             | +33   | 9° 471 | 9° 5325              | 0° 007 8371             | +34   | 9° 470 | 9° 5375              | 0° 008 0072             | +34   | 9° 469 |
| 26                   | 5103                    | +32   | 472    | 76                   | 6737                    | +33   | 471    | 26                   | 8405                    | +34   | 470    | 76                   | 0106                    | +34   | 469    |
| 27                   | 5135                    | +32   | 472    | 77                   | 6770                    | +33   | 471    | 27                   | 8439                    | +33   | 470    | 77                   | 0140                    | +34   | 469    |
| 28                   | 5168                    | +32   | 472    | 78                   | 6803                    | +33   | 471    | 28                   | 8472                    | +34   | 470    | 78                   | 0175                    | +35   | 469    |
| 29                   | 5200                    | +32   | 472    | 79                   | 6836                    | +33   | 471    | 29                   | 8506                    | +34   | 470    | 79                   | 0209                    | +34   | 469    |
| 9° 5230              | 0° 007 5232             | +33   | 9° 472 | 9° 5280              | 0° 007 6869             | +34   | 9° 471 | 9° 5330              | 0° 007 8540             | +33   | 9° 470 | 9° 5380              | 0° 008 0244             | +34   | 9° 469 |
| 31                   | 5265                    | +32   | 472    | 81                   | 6903                    | +33   | 471    | 31                   | 8573                    | +34   | 470    | 81                   | 0278                    | +35   | 469    |
| 32                   | 5297                    | +32   | 472    | 82                   | 6936                    | +33   | 471    | 32                   | 8607                    | +34   | 470    | 82                   | 0313                    | +34   | 469    |
| 33                   | 5330                    | +32   | 472    | 83                   | 6969                    | +33   | 471    | 33                   | 8641                    | +34   | 470    | 83                   | 0347                    | +34   | 469    |
| 34                   | 5362                    | +32   | 472    | 84                   | 7002                    | +33   | 471    | 34                   | 8675                    | +34   | 470    | 84                   | 0381                    | +35   | 469    |
| 9° 5235              | 0° 007 5395             | +32   | 9° 472 | 9° 5285              | 0° 007 7035             | +33   | 9° 471 | 9° 5335              | 0° 007 8709             | +33   | 9° 470 | 9° 5385              | 0° 008 0416             | +34   | 9° 469 |
| 36                   | 5427                    | +32   | 472    | 86                   | 7068                    | +33   | 471    | 36                   | 8742                    | +34   | 470    | 86                   | 0450                    | +34   | 469    |
| 37                   | 5460                    | +32   | 472    | 87                   | 7101                    | +33   | 471    | 37                   | 8776                    | +34   | 470    | 87                   | 0485                    | +35   | 469    |
| 38                   | 5492                    | +32   | 472    | 88                   | 7134                    | +33   | 471    | 38                   | 8810                    | +34   | 470    | 88                   | 0519                    | +34   | 469    |
| 39                   | 5525                    | +32   | 472    | 89                   | 7168                    | +33   | 471    | 39                   | 8844                    | +34   | 470    | 89                   | 0554                    | +35   | 469    |
| 9° 5240              | 0° 007 5557             | +33   | 9° 472 | 9° 5290              | 0° 007 7201             | +33   | 9° 471 | 9° 5340              | 0° 007 8878             | +34   | 9° 470 | 9° 5390              | 0° 008 0589             | +34   | 9° 469 |
| 41                   | 5590                    | +32   | 472    | 91                   | 7234                    | +33   | 471    | 41                   | 8912                    | +34   | 470    | 91                   | 0623                    | +35   | 469    |
| 42                   | 5622                    | +32   | 472    | 92                   | 7267                    | +33   | 471    | 42                   | 8946                    | +33   | 470    | 92                   | 0658                    | +34   | 469    |
| 43                   | 5655                    | +32   | 472    | 93                   | 7301                    | +33   | 471    | 43                   | 8979                    | +34   | 470    | 93                   | 0692                    | +34   | 469    |
| 44                   | 5687                    | +32   | 472    | 94                   | 7334                    | +33   | 471    | 44                   | 9013                    | +34   | 470    | 94                   | 0727                    | +35   | 468    |
| 9° 5245              | 0° 007 5720             | +33   | 9° 472 | 9° 5295              | 0° 007 7367             | +33   | 9° 471 | 9° 5345              | 0° 007 9047             | +34   | 9° 470 | 9° 5395              | 0° 008 0762             | +34   | 9° 468 |
| 46                   | 5753                    | +32   | 472    | 96                   | 7400                    | +34   | 471    | 46                   | 9081                    | +34   | 470    | 96                   | 0796                    | +35   | 468    |
| 47                   | 5785                    | +32   | 472    | 97                   | 7434                    | +33   | 471    | 47                   | 9115                    | +34   | 470    | 97                   | 0831                    | +34   | 468    |
| 48                   | 5818                    | +32   | 472    | 98                   | 7467                    | +33   | 471    | 48                   | 9149                    | +34   | 470    | 98                   | 0865                    | +34   | 468    |
| 49                   | 5851                    | +32   | 472    | 99                   | 7500                    | +34   | 471    | 49                   | 9183                    | +34   | 470    | 99                   | 0900                    | +35   | 468    |
| 9° 5250              | 0° 007 5883             |       | 9° 472 | 9° 5300              | 0° 007 7534             |       | 9° 471 | 9° 5350              | 0° 007 9217             |       | 9° 470 | 9° 5400              | 0° 008 0935             |       | 9° 468 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|
| 9.5400               | 0.008 0935             | +35   | 9.468 | 9.5450               | 0.008 2087             | +35   | 9.467 | 9.5500               | 0.008 4474             | +36   | 9.466 | 9.5550               | 0.008 6297             | +37   | 9.465 |
| 01                   | 0970                   | +34   | 468   | 51                   | 2722                   | +36   | 467   | 01                   | 4510                   | +30   | 466   | 51                   | 6334                   | +36   | 465   |
| 02                   | 1004                   | +35   | 468   | 52                   | 2758                   | +35   | 467   | 02                   | 4546                   | +30   | 466   | 52                   | 6370                   | +37   | 465   |
| 03                   | 1039                   | +35   | 468   | 53                   | 2793                   | +36   | 467   | 03                   | 4582                   | +30   | 466   | 53                   | 6407                   | +37   | 465   |
| 04                   | 1074                   | +34   | 468   | 54                   | 2829                   | +35   | 467   | 04                   | 4619                   | +30   | 466   | 54                   | 6444                   | +37   | 465   |
| 9.5405               | 0.008 1108             | +35   | 9.468 | 9.5455               | 0.008 2864             | +35   | 9.467 | 9.5505               | 0.008 4655             | +36   | 9.466 | 9.5555               | 0.008 6481             | +37   | 9.465 |
| 06                   | 1143                   | +35   | 468   | 56                   | 2899                   | +36   | 467   | 06                   | 4691                   | +36   | 466   | 56                   | 6518                   | +37   | 465   |
| 07                   | 1178                   | +35   | 468   | 57                   | 2935                   | +35   | 467   | 07                   | 4727                   | +36   | 466   | 57                   | 6555                   | +37   | 464   |
| 08                   | 1213                   | +35   | 468   | 58                   | 2970                   | +36   | 467   | 08                   | 4763                   | +36   | 466   | 58                   | 6592                   | +37   | 464   |
| 09                   | 1248                   | +34   | 468   | 59                   | 3006                   | +35   | 467   | 09                   | 4799                   | +37   | 466   | 59                   | 6629                   | +37   | 464   |
| 9.5410               | 0.008 1282             | +35   | 9.468 | 9.5460               | 0.008 3041             | +36   | 9.467 | 9.5510               | 0.008 4836             | +36   | 9.466 | 9.5560               | 0.008 6666             | +37   | 9.464 |
| 11                   | 1317                   | +35   | 468   | 61                   | 3077                   | +36   | 467   | 11                   | 4872                   | +36   | 466   | 01                   | 6703                   | +37   | 464   |
| 12                   | 1352                   | +35   | 468   | 62                   | 3113                   | +35   | 467   | 12                   | 4908                   | +36   | 466   | 02                   | 6740                   | +37   | 464   |
| 13                   | 1387                   | +35   | 468   | 63                   | 3148                   | +36   | 467   | 13                   | 4944                   | +36   | 466   | 03                   | 6777                   | +37   | 464   |
| 14                   | 1422                   | +35   | 468   | 64                   | 3184                   | +35   | 467   | 14                   | 4981                   | +37   | 466   | 04                   | 6814                   | +37   | 464   |
| 9.5415               | 0.008 1457             | +35   | 9.468 | 9.5465               | 0.008 3219             | +36   | 9.467 | 9.5515               | 0.008 5017             | +36   | 9.466 | 9.5565               | 0.008 6851             | +37   | 9.464 |
| 16                   | 1492                   | +35   | 468   | 66                   | 3255                   | +36   | 467   | 16                   | 5053                   | +37   | 466   | 06                   | 6888                   | +37   | 464   |
| 17                   | 1527                   | +35   | 468   | 67                   | 3291                   | +35   | 467   | 17                   | 5090                   | +36   | 465   | 07                   | 6925                   | +37   | 464   |
| 18                   | 1562                   | +35   | 468   | 68                   | 3326                   | +36   | 467   | 18                   | 5126                   | +36   | 465   | 08                   | 6962                   | +37   | 464   |
| 19                   | 1597                   | +34   | 468   | 69                   | 3362                   | +35   | 467   | 19                   | 5162                   | +37   | 465   | 09                   | 6999                   | +37   | 464   |
| 9.5420               | 0.008 1631             | +35   | 9.468 | 9.5470               | 0.008 3397             | +36   | 9.467 | 9.5520               | 0.008 5199             | +36   | 9.465 | 9.5570               | 0.008 7036             | +37   | 9.464 |
| 21                   | 1666                   | +35   | 468   | 71                   | 3433                   | +36   | 467   | 21                   | 5235                   | +37   | 465   | 71                   | 7073                   | +37   | 464   |
| 22                   | 1701                   | +35   | 468   | 72                   | 3469                   | +36   | 467   | 22                   | 5272                   | +36   | 465   | 72                   | 7110                   | +37   | 464   |
| 23                   | 1736                   | +35   | 468   | 73                   | 3505                   | +35   | 467   | 23                   | 5308                   | +36   | 465   | 73                   | 7147                   | +38   | 464   |
| 24                   | 1771                   | +35   | 468   | 74                   | 3540                   | +36   | 467   | 24                   | 5344                   | +37   | 465   | 74                   | 7185                   | +37   | 464   |
| 9.5425               | 0.008 1806             | +36   | 9.468 | 9.5475               | 0.008 3576             | +36   | 9.467 | 9.5525               | 0.008 5381             | +36   | 9.465 | 9.5575               | 0.008 7222             | +37   | 9.464 |
| 26                   | 1842                   | +35   | 468   | 76                   | 3612                   | +36   | 467   | 26                   | 5417                   | +37   | 465   | 76                   | 7259                   | +37   | 464   |
| 27                   | 1877                   | +35   | 468   | 77                   | 3648                   | +35   | 467   | 27                   | 5454                   | +36   | 465   | 77                   | 7296                   | +37   | 464   |
| 28                   | 1912                   | +35   | 468   | 78                   | 3683                   | +36   | 466   | 28                   | 5490                   | +37   | 465   | 78                   | 7333                   | +38   | 464   |
| 29                   | 1947                   | +35   | 468   | 79                   | 3719                   | +36   | 466   | 29                   | 5527                   | +36   | 465   | 79                   | 7371                   | +37   | 464   |
| 9.5430               | 0.008 1982             | +35   | 9.468 | 9.5480               | 0.008 3755             | +36   | 9.466 | 9.5530               | 0.008 5563             | +37   | 9.465 | 9.5580               | 0.008 7408             | +37   | 9.464 |
| 31                   | 2017                   | +35   | 468   | 81                   | 3791                   | +36   | 466   | 31                   | 5600                   | +36   | 465   | 81                   | 7445                   | +37   | 464   |
| 32                   | 2052                   | +35   | 468   | 82                   | 3827                   | +35   | 466   | 32                   | 5636                   | +37   | 465   | 82                   | 7482                   | +38   | 464   |
| 33                   | 2087                   | +35   | 468   | 83                   | 3862                   | +36   | 466   | 33                   | 5673                   | +37   | 465   | 83                   | 7520                   | +37   | 464   |
| 34                   | 2122                   | +36   | 468   | 84                   | 3898                   | +36   | 466   | 34                   | 5710                   | +36   | 465   | 84                   | 7557                   | +37   | 464   |
| 9.5435               | 0.008 2158             | +35   | 9.468 | 9.5485               | 0.008 3934             | +36   | 9.466 | 9.5535               | 0.008 5746             | +37   | 9.465 | 9.5585               | 0.008 7594             | +38   | 9.464 |
| 36                   | 2193                   | +35   | 467   | 86                   | 3970                   | +36   | 466   | 36                   | 5783                   | +36   | 465   | 86                   | 7632                   | +37   | 464   |
| 37                   | 2228                   | +35   | 467   | 87                   | 4006                   | +36   | 466   | 37                   | 5819                   | +37   | 465   | 87                   | 7669                   | +37   | 464   |
| 38                   | 2263                   | +35   | 467   | 88                   | 4042                   | +36   | 466   | 38                   | 5856                   | +37   | 465   | 88                   | 7706                   | +38   | 464   |
| 39                   | 2298                   | +36   | 467   | 89                   | 4078                   | +36   | 466   | 39                   | 5893                   | +36   | 465   | 89                   | 7744                   | +37   | 464   |
| 9.5440               | 0.008 2334             | +35   | 9.467 | 9.5490               | 0.008 4114             | +36   | 9.466 | 9.5540               | 0.008 5929             | +37   | 9.465 | 9.5590               | 0.008 7781             | +37   | 9.464 |
| 41                   | 2369                   | +35   | 467   | 91                   | 4150                   | +36   | 466   | 41                   | 5966                   | +37   | 465   | 91                   | 7818                   | +38   | 464   |
| 42                   | 2404                   | +35   | 467   | 92                   | 4186                   | +36   | 466   | 42                   | 6003                   | +37   | 465   | 92                   | 7856                   | +37   | 464   |
| 43                   | 2439                   | +35   | 467   | 93                   | 4222                   | +36   | 466   | 43                   | 6039                   | +37   | 465   | 93                   | 7893                   | +38   | 464   |
| 44                   | 2475                   | +35   | 467   | 94                   | 4258                   | +36   | 466   | 44                   | 6076                   | +37   | 465   | 94                   | 7931                   | +37   | 464   |
| 9.5445               | 0.008 2510             | +35   | 9.467 | 9.5495               | 0.008 4294             | +36   | 9.466 | 9.5545               | 0.008 6113             | +37   | 9.465 | 9.5595               | 0.008 7968             | +38   | 9.464 |
| 46                   | 2545                   | +36   | 467   | 96                   | 4330                   | +36   | 466   | 46                   | 6150                   | +36   | 465   | 96                   | 8006                   | +37   | 463   |
| 47                   | 2581                   | +35   | 467   | 97                   | 4366                   | +36   | 466   | 47                   | 6186                   | +37   | 465   | 97                   | 8043                   | +38   | 463   |
| 48                   | 2616                   | +35   | 467   | 98                   | 4402                   | +36   | 466   | 48                   | 6223                   | +37   | 465   | 98                   | 8081                   | +37   | 463   |
| 49                   | 2651                   | +36   | 467   | 99                   | 4438                   | +36   | 466   | 49                   | 6260                   | +37   | 465   | 99                   | 8118                   | +38   | 463   |
| 9.5450               | 0.008 2687             |       | 9.467 | 9.5500               | 0.008 4474             |       | 9.466 | 9.5550               | 0.008 6297             |       | 9.465 | 9.5600               | 0.008 8156             |       | 9.463 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|
| 9.5600               | 0.008 8156             | +37   | 9.463 | 9.5650               | 0.009 0052             | +38   | 9.462 | 9.5700               | 0.009 1985             | +39   | 9.461 | 9.5750               | 0.009 3956             | +40   | 9.459 |
| 01                   | 8193                   | +38   | 403   | 51                   | 0090                   | +38   | 402   | 01                   | 2024                   | +39   | 401   | 51                   | 3996                   | +40   | 459   |
| 02                   | 8231                   | +37   | 403   | 52                   | 0128                   | +38   | 402   | 02                   | 2003                   | +39   | 401   | 52                   | 4036                   | +39   | 459   |
| 03                   | 8268                   | +37   | 403   | 53                   | 0166                   | +38   | 402   | 03                   | 2102                   | +39   | 401   | 53                   | 4075                   | +40   | 459   |
| 04                   | 8306                   | +38   | 403   | 54                   | 0205                   | +39   | 402   | 04                   | 2141                   | +39   | 401   | 54                   | 4115                   | +40   | 459   |
| 9.5605               | 0.008 8344             | +37   | 9.463 | 9.5655               | 0.009 0243             | +39   | 9.462 | 9.5705               | 0.009 2180             | +39   | 9.461 | 9.5755               | 0.009 4155             | +40   | 9.459 |
| 00                   | 8381                   | +38   | 403   | 56                   | 0282                   | +38   | 402   | 06                   | 2219                   | +39   | 401   | 56                   | 4195                   | +40   | 459   |
| 07                   | 8419                   | +38   | 403   | 57                   | 0320                   | +38   | 402   | 07                   | 2258                   | +39   | 401   | 57                   | 4235                   | +40   | 459   |
| 08                   | 8457                   | +38   | 403   | 58                   | 0358                   | +39   | 402   | 08                   | 2298                   | +39   | 401   | 58                   | 4275                   | +40   | 459   |
| 09                   | 8494                   | +38   | 403   | 59                   | 0397                   | +38   | 402   | 09                   | 2337                   | +39   | 400   | 59                   | 4315                   | +40   | 459   |
| 9.5610               | 0.008 8532             | +38   | 9.463 | 9.5660               | 0.009 0435             | +39   | 9.462 | 9.5710               | 0.009 2376             | +39   | 9.460 | 9.5760               | 0.009 4355             | +40   | 9.459 |
| 11                   | 8570                   | +37   | 403   | 61                   | 0474                   | +38   | 402   | 11                   | 2415                   | +39   | 400   | 61                   | 4395                   | +40   | 459   |
| 12                   | 8607                   | +38   | 403   | 62                   | 0512                   | +38   | 402   | 12                   | 2454                   | +39   | 400   | 62                   | 4435                   | +40   | 459   |
| 13                   | 8645                   | +38   | 403   | 63                   | 0551                   | +38   | 402   | 13                   | 2494                   | +39   | 400   | 63                   | 4475                   | +40   | 459   |
| 14                   | 8683                   | +38   | 403   | 64                   | 0589                   | +39   | 402   | 14                   | 2533                   | +39   | 400   | 64                   | 4515                   | +40   | 459   |
| 9.5615               | 0.008 8721             | +37   | 9.463 | 9.5665               | 0.009 0628             | +38   | 9.462 | 9.5715               | 0.009 2572             | +39   | 9.460 | 9.5765               | 0.009 4555             | +40   | 9.459 |
| 16                   | 8758                   | +38   | 403   | 66                   | 0666                   | +39   | 402   | 16                   | 2611                   | +40   | 400   | 66                   | 4595                   | +40   | 459   |
| 17                   | 8796                   | +38   | 403   | 67                   | 0705                   | +38   | 402   | 17                   | 2651                   | +39   | 400   | 67                   | 4635                   | +40   | 459   |
| 18                   | 8834                   | +38   | 403   | 68                   | 0743                   | +39   | 402   | 18                   | 2690                   | +39   | 400   | 68                   | 4675                   | +40   | 459   |
| 19                   | 8872                   | +38   | 403   | 69                   | 0782                   | +38   | 402   | 19                   | 2729                   | +40   | 400   | 69                   | 4715                   | +40   | 459   |
| 9.5620               | 0.008 8910             | +37   | 9.463 | 9.5670               | 0.009 0820             | +39   | 9.462 | 9.5720               | 0.009 2769             | +39   | 9.460 | 9.5770               | 0.009 4755             | +40   | 9.459 |
| 21                   | 8947                   | +38   | 403   | 71                   | 0859                   | +39   | 402   | 21                   | 2808                   | +39   | 400   | 71                   | 4795                   | +41   | 459   |
| 22                   | 8985                   | +38   | 403   | 72                   | 0898                   | +39   | 401   | 22                   | 2847                   | +40   | 400   | 72                   | 4836                   | +40   | 459   |
| 23                   | 9023                   | +38   | 403   | 73                   | 0936                   | +38   | 401   | 23                   | 2887                   | +39   | 400   | 73                   | 4876                   | +40   | 459   |
| 24                   | 9061                   | +38   | 403   | 74                   | 0975                   | +39   | 401   | 24                   | 2926                   | +40   | 400   | 74                   | 4916                   | +40   | 459   |
| 9.5625               | 0.008 9099             | +38   | 9.463 | 9.5675               | 0.009 1013             | +39   | 9.461 | 9.5725               | 0.009 2960             | +39   | 9.460 | 9.5775               | 0.009 4956             | +40   | 9.459 |
| 26                   | 9137                   | +38   | 403   | 76                   | 1052                   | +39   | 401   | 26                   | 3005                   | +39   | 400   | 76                   | 4996                   | +40   | 459   |
| 27                   | 9175                   | +38   | 403   | 77                   | 1091                   | +39   | 401   | 27                   | 3044                   | +40   | 400   | 77                   | 5036                   | +41   | 459   |
| 28                   | 9213                   | +38   | 403   | 78                   | 1130                   | +39   | 401   | 28                   | 3084                   | +39   | 400   | 78                   | 5077                   | +40   | 459   |
| 29                   | 9251                   | +38   | 403   | 79                   | 1168                   | +39   | 401   | 29                   | 3123                   | +40   | 400   | 79                   | 5117                   | +40   | 459   |
| 9.5630               | 0.008 9289             | +38   | 9.463 | 9.5680               | 0.009 1207             | +39   | 9.461 | 9.5730               | 0.009 3103             | +39   | 9.460 | 9.5780               | 0.009 5157             | +40   | 9.459 |
| 31                   | 9327                   | +38   | 403   | 81                   | 1246                   | +39   | 401   | 31                   | 3202                   | +40   | 400   | 81                   | 5197                   | +41   | 459   |
| 32                   | 9365                   | +38   | 403   | 82                   | 1284                   | +38   | 401   | 32                   | 3242                   | +39   | 400   | 82                   | 5238                   | +40   | 458   |
| 33                   | 9403                   | +38   | 403   | 83                   | 1323                   | +39   | 401   | 33                   | 3281                   | +40   | 400   | 83                   | 5278                   | +40   | 458   |
| 34                   | 9441                   | +38   | 402   | 84                   | 1362                   | +39   | 401   | 34                   | 3321                   | +40   | 400   | 84                   | 5318                   | +41   | 458   |
| 9.5635               | 0.008 9479             | +38   | 9.462 | 9.5685               | 0.009 1401             | +39   | 9.461 | 9.5735               | 0.009 3301             | +39   | 9.460 | 9.5785               | 0.009 5359             | +40   | 9.458 |
| 36                   | 9517                   | +38   | 402   | 86                   | 1440                   | +39   | 401   | 36                   | 3400                   | +40   | 400   | 86                   | 5399                   | +41   | 458   |
| 37                   | 9555                   | +38   | 402   | 87                   | 1479                   | +38   | 401   | 37                   | 3440                   | +39   | 400   | 87                   | 5440                   | +40   | 458   |
| 38                   | 9593                   | +38   | 402   | 88                   | 1517                   | +39   | 401   | 38                   | 3479                   | +40   | 400   | 88                   | 5480                   | +40   | 458   |
| 39                   | 9631                   | +38   | 402   | 89                   | 1556                   | +39   | 401   | 39                   | 3519                   | +40   | 400   | 89                   | 5520                   | +41   | 458   |
| 9.5640               | 0.008 9669             | +39   | 9.462 | 9.5690               | 0.009 1595             | +39   | 9.461 | 9.5740               | 0.009 3559             | +39   | 9.460 | 9.5790               | 0.009 5561             | +40   | 9.458 |
| 41                   | 9708                   | +38   | 402   | 91                   | 1634                   | +39   | 401   | 41                   | 3598                   | +40   | 400   | 91                   | 5601                   | +41   | 458   |
| 42                   | 9746                   | +38   | 402   | 92                   | 1673                   | +39   | 401   | 42                   | 3638                   | +40   | 400   | 92                   | 5642                   | +40   | 458   |
| 43                   | 9784                   | +38   | 402   | 93                   | 1712                   | +39   | 401   | 43                   | 3678                   | +39   | 400   | 93                   | 5682                   | +41   | 458   |
| 44                   | 9822                   | +38   | 402   | 94                   | 1751                   | +39   | 401   | 44                   | 3717                   | +40   | 400   | 94                   | 5723                   | +40   | 458   |
| 9.5645               | 0.008 9860             | +39   | 9.462 | 9.5695               | 0.009 1790             | +39   | 9.461 | 9.5745               | 0.009 3757             | +40   | 9.460 | 9.5795               | 0.009 5763             | +41   | 9.458 |
| 46                   | 9899                   | +38   | 402   | 96                   | 1829                   | +39   | 401   | 46                   | 3797                   | +40   | 459   | 96                   | 5804                   | +40   | 458   |
| 47                   | 9937                   | +38   | 402   | 97                   | 1868                   | +39   | 401   | 47                   | 3837                   | +39   | 459   | 97                   | 5844                   | +41   | 458   |
| 48                   | 9975                   | +38   | 402   | 98                   | 1907                   | +39   | 401   | 48                   | 3876                   | +40   | 459   | 98                   | 5885                   | +40   | 458   |
| 49                   | 009 0013               | +39   | 402   | 99                   | 1946                   | +39   | 401   | 49                   | 3916                   | +40   | 459   | 99                   | 5925                   | +41   | 458   |
| 9.5650               | 0.009 0052             |       | 9.462 | 9.5700               | 0.009 1985             |       | 9.461 | 9.5750               | 0.009 3956             |       | 9.459 | 9.5800               | 0.009 5966             |       | 9.458 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff.  | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g  |       |      |     |       |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|--------|-------|----------------------|------------------------|-------|--------|-------|------|-----|-------|
| 9°5800               | 0°009                  | 5906  | +40   | 9°458                | 9°5850                 | 0°009 | 8015  | +41                  | 9°457                  | 9°5900 | 0°010 | 0104                 | +42                    | 9°455 | 9°5950 | 0°010 | 2233 | +43 | 9°454 |
| 01                   | 0006                   | +41   | 458   | 51                   | 8056                   | +42   | 457   | 01                   | 0146                   | +42    | 455   | 51                   | 2276                   | +43   | 454    |       |      |     |       |
| 02                   | 0047                   | +41   | 458   | 52                   | 8098                   | +41   | 450   | 02                   | 0188                   | +42    | 455   | 52                   | 2319                   | +43   | 454    |       |      |     |       |
| 03                   | 0088                   | +40   | 458   | 53                   | 8139                   | +41   | 450   | 03                   | 0230                   | +42    | 455   | 53                   | 2362                   | +43   | 454    |       |      |     |       |
| 04                   | 0128                   | +41   | 458   | 54                   | 8180                   | +42   | 450   | 04                   | 0272                   | +43    | 455   | 54                   | 2405                   | +43   | 454    |       |      |     |       |
| 9°5805               | 0°009                  | 6169  | +41   | 9°458                | 9°5855                 | 0°009 | 8222  | +41                  | 9°450                  | 9°5905 | 0°010 | 0315                 | +42                    | 9°455 | 9°5955 | 0°010 | 2448 | +43 | 9°453 |
| 00                   | 6210                   | +40   | 458   | 56                   | 8203                   | +42   | 456   | 00                   | 0357                   | +42    | 455   | 56                   | 2491                   | +43   | 453    |       |      |     |       |
| 07                   | 6250                   | +41   | 458   | 57                   | 8305                   | +41   | 456   | 07                   | 0399                   | +43    | 455   | 57                   | 2534                   | +43   | 453    |       |      |     |       |
| 08                   | 6291                   | +41   | 458   | 58                   | 8346                   | +42   | 450   | 08                   | 0442                   | +42    | 455   | 58                   | 2577                   | +44   | 453    |       |      |     |       |
| 09                   | 6332                   | +40   | 458   | 59                   | 8388                   | +41   | 450   | 09                   | 0484                   | +42    | 455   | 59                   | 2621                   | +43   | 453    |       |      |     |       |
| 9°5810               | 0°009                  | 6372  | +41   | 9°458                | 9°5860                 | 0°009 | 8429  | +42                  | 9°450                  | 9°5910 | 0°010 | 0526                 | +43                    | 9°455 | 9°5960 | 0°010 | 2664 | +43 | 9°453 |
| 11                   | 6413                   | +41   | 458   | 61                   | 8471                   | +41   | 450   | 11                   | 0569                   | +42    | 455   | 61                   | 2707                   | +43   | 453    |       |      |     |       |
| 12                   | 6454                   | +41   | 458   | 62                   | 8512                   | +42   | 450   | 12                   | 0611                   | +42    | 455   | 62                   | 2750                   | +43   | 453    |       |      |     |       |
| 13                   | 6495                   | +41   | 458   | 63                   | 8554                   | +42   | 450   | 13                   | 0653                   | +43    | 455   | 63                   | 2793                   | +43   | 453    |       |      |     |       |
| 14                   | 6536                   | +40   | 458   | 64                   | 8596                   | +41   | 450   | 14                   | 0696                   | +42    | 455   | 64                   | 2836                   | +44   | 453    |       |      |     |       |
| 9°5815               | 0°009                  | 6576  | +41   | 9°458                | 9°5865                 | 0°009 | 8637  | +42                  | 9°450                  | 9°5915 | 0°010 | 0738                 | +43                    | 9°455 | 9°5965 | 0°010 | 2880 | +43 | 9°453 |
| 10                   | 6617                   | +41   | 458   | 66                   | 8679                   | +42   | 450   | 16                   | 0781                   | +42    | 455   | 66                   | 2923                   | +43   | 453    |       |      |     |       |
| 17                   | 6658                   | +41   | 457   | 67                   | 8721                   | +41   | 450   | 17                   | 0823                   | +42    | 455   | 67                   | 2966                   | +43   | 453    |       |      |     |       |
| 18                   | 6699                   | +41   | 457   | 68                   | 8762                   | +42   | 450   | 18                   | 0865                   | +43    | 455   | 68                   | 3009                   | +44   | 453    |       |      |     |       |
| 19                   | 6740                   | +41   | 457   | 69                   | 8804                   | +42   | 450   | 19                   | 0908                   | +42    | 455   | 69                   | 3053                   | +43   | 453    |       |      |     |       |
| 9°5820               | 0°009                  | 6781  | +41   | 9°457                | 9°5870                 | 0°009 | 8846  | +41                  | 9°450                  | 9°5920 | 0°010 | 0950                 | +43                    | 9°455 | 9°5970 | 0°010 | 3096 | +43 | 9°453 |
| 21                   | 6822                   | +41   | 457   | 71                   | 8887                   | +42   | 450   | 21                   | 0993                   | +43    | 454   | 71                   | 3139                   | +44   | 453    |       |      |     |       |
| 22                   | 6863                   | +40   | 457   | 72                   | 8929                   | +42   | 450   | 22                   | 1036                   | +42    | 454   | 72                   | 3183                   | +43   | 453    |       |      |     |       |
| 23                   | 6903                   | +41   | 457   | 73                   | 8971                   | +41   | 450   | 23                   | 1078                   | +43    | 454   | 73                   | 3226                   | +43   | 453    |       |      |     |       |
| 24                   | 6944                   | +41   | 457   | 74                   | 9012                   | +42   | 450   | 24                   | 1121                   | +42    | 454   | 74                   | 3269                   | +44   | 453    |       |      |     |       |
| 9°5825               | 0°009                  | 6985  | +41   | 9°457                | 9°5875                 | 0°009 | 9054  | +42                  | 9°450                  | 9°5925 | 0°010 | 1163                 | +43                    | 9°454 | 9°5975 | 0°010 | 3313 | +43 | 9°453 |
| 26                   | 7026                   | +41   | 457   | 76                   | 9096                   | +42   | 450   | 26                   | 1206                   | +42    | 454   | 76                   | 3356                   | +44   | 453    |       |      |     |       |
| 27                   | 7067                   | +41   | 457   | 77                   | 9138                   | +42   | 450   | 27                   | 1248                   | +43    | 454   | 77                   | 3400                   | +43   | 453    |       |      |     |       |
| 28                   | 7108                   | +41   | 457   | 78                   | 9180                   | +41   | 450   | 28                   | 1291                   | +43    | 454   | 78                   | 3443                   | +44   | 453    |       |      |     |       |
| 29                   | 7149                   | +41   | 457   | 79                   | 9221                   | +42   | 450   | 29                   | 1334                   | +42    | 454   | 79                   | 3487                   | +43   | 453    |       |      |     |       |
| 9°5830               | 0°009                  | 7190  | +42   | 9°457                | 9°5880                 | 0°009 | 9263  | +42                  | 9°450                  | 9°5930 | 0°010 | 1376                 | +43                    | 9°454 | 9°5980 | 0°010 | 3530 | +44 | 9°453 |
| 31                   | 7232                   | +41   | 457   | 81                   | 9305                   | +42   | 450   | 31                   | 1419                   | +43    | 454   | 81                   | 3574                   | +43   | 453    |       |      |     |       |
| 32                   | 7273                   | +41   | 457   | 82                   | 9347                   | +42   | 450   | 32                   | 1462                   | +42    | 454   | 82                   | 3617                   | +44   | 453    |       |      |     |       |
| 33                   | 7314                   | +41   | 457   | 83                   | 9389                   | +42   | 450   | 33                   | 1504                   | +43    | 454   | 83                   | 3661                   | +43   | 453    |       |      |     |       |
| 34                   | 7355                   | +41   | 457   | 84                   | 9431                   | +42   | 450   | 34                   | 1547                   | +43    | 454   | 84                   | 3704                   | +44   | 453    |       |      |     |       |
| 9°5835               | 0°009                  | 7396  | +41   | 9°457                | 9°5885                 | 0°009 | 9473  | +42                  | 9°450                  | 9°5935 | 0°010 | 1590                 | +43                    | 9°454 | 9°5985 | 0°010 | 3748 | +43 | 9°453 |
| 36                   | 7437                   | +41   | 457   | 86                   | 9515                   | +42   | 456   | 36                   | 1633                   | +43    | 454   | 86                   | 3791                   | +44   | 453    |       |      |     |       |
| 37                   | 7478                   | +41   | 457   | 87                   | 9557                   | +42   | 455   | 37                   | 1675                   | +42    | 454   | 87                   | 3835                   | +44   | 453    |       |      |     |       |
| 38                   | 7519                   | +41   | 457   | 88                   | 9599                   | +42   | 455   | 38                   | 1718                   | +43    | 454   | 88                   | 3879                   | +44   | 452    |       |      |     |       |
| 39                   | 7561                   | +41   | 457   | 89                   | 9641                   | +42   | 455   | 39                   | 1761                   | +43    | 454   | 89                   | 3922                   | +44   | 452    |       |      |     |       |
| 9°5840               | 0°009                  | 7602  | +41   | 9°457                | 9°5890                 | 0°009 | 9683  | +42                  | 9°455                  | 9°5940 | 0°010 | 1804                 | +43                    | 9°454 | 9°5990 | 0°010 | 3966 | +43 | 9°452 |
| 41                   | 7643                   | +41   | 457   | 91                   | 9725                   | +42   | 455   | 41                   | 1847                   | +43    | 454   | 91                   | 4009                   | +44   | 452    |       |      |     |       |
| 42                   | 7684                   | +41   | 457   | 92                   | 9767                   | +42   | 455   | 42                   | 1889                   | +42    | 454   | 92                   | 4053                   | +44   | 452    |       |      |     |       |
| 43                   | 7726                   | +41   | 457   | 93                   | 9809                   | +42   | 455   | 43                   | 1932                   | +43    | 454   | 93                   | 4097                   | +44   | 452    |       |      |     |       |
| 44                   | 7767                   | +41   | 457   | 94                   | 9851                   | +42   | 455   | 44                   | 1975                   | +43    | 454   | 94                   | 4141                   | +43   | 452    |       |      |     |       |
| 9°5845               | 0°009                  | 7808  | +41   | 9°457                | 9°5895                 | 0°009 | 9893  | +42                  | 9°455                  | 9°5945 | 0°010 | 2018                 | +43                    | 9°454 | 9°5995 | 0°010 | 4184 | +44 | 9°452 |
| 46                   | 7849                   | +42   | 457   | 96                   | 9935                   | +42   | 455   | 46                   | 2061                   | +43    | 454   | 96                   | 4228                   | +44   | 452    |       |      |     |       |
| 47                   | 7891                   | +41   | 457   | 97                   | 9977                   | +42   | 455   | 47                   | 2104                   | +43    | 454   | 97                   | 4272                   | +44   | 452    |       |      |     |       |
| 48                   | 7932                   | +41   | 457   | 98                   | 0019                   | +42   | 455   | 48                   | 2147                   | +43    | 454   | 98                   | 4316                   | +44   | 452    |       |      |     |       |
| 49                   | 7973                   | +42   | 457   | 99                   | 0061                   | +43   | 455   | 49                   | 2190                   | +43    | 454   | 99                   | 4359                   | +43   | 452    |       |      |     |       |
| 9°5850               | 0°009                  | 8015  |       | 9°457                | 9°5900                 | 0°010 | 0104  |                      | 9°455                  | 9°5950 | 0°010 | 2233                 |                        | 9°454 | 9°6000 | 0°010 | 4403 |     | 9°452 |



| log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>E-M | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>±tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|---------------------|------------------------|-------|-------|-------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|---------------------|------------------------|-------|-------|
| 9.6000              | 0.010 4403             | +44   | 9.452 | 9.6050            | 0.010 6615             | +45   | 9.451 | 9.6100              | 0.010 8869             | +40   | 9.449 | 9.6150              | 0.011 1160             | +47   | 9.447 |
| 01                  | 4447                   | +44   | 452   | 51                | 6660                   | +44   | 451   | 01                  | 8915                   | +45   | 449   | 51                  | 1213                   | +46   | 447   |
| 02                  | 4491                   | +44   | 452   | 52                | 6704                   | +45   | 451   | 02                  | 8960                   | +46   | 449   | 52                  | 1259                   | +47   | 447   |
| 03                  | 4535                   | +44   | 452   | 53                | 6749                   | +45   | 450   | 03                  | 9006                   | +46   | 449   | 53                  | 1306                   | +46   | 447   |
| 04                  | 4579                   | +44   | 452   | 54                | 6794                   | +45   | 450   | 04                  | 9052                   | +45   | 449   | 54                  | 1352                   | +47   | 447   |
| 9.6005              | 0.010 4623             | +43   | 9.452 | 9.6055            | 0.010 6839             | +44   | 9.450 | 9.6105              | 0.010 9097             | +46   | 9.449 | 9.6155              | 0.011 1399             | +40   | 9.447 |
| 06                  | 4666                   | +44   | 452   | 56                | 6883                   | +45   | 450   | 06                  | 9143                   | +45   | 449   | 56                  | 1445                   | +40   | 447   |
| 07                  | 4710                   | +44   | 452   | 57                | 6928                   | +45   | 450   | 07                  | 9188                   | +46   | 449   | 57                  | 1491                   | +47   | 447   |
| 08                  | 4754                   | +44   | 452   | 58                | 6973                   | +45   | 450   | 08                  | 9234                   | +46   | 449   | 58                  | 1538                   | +46   | 447   |
| 09                  | 4798                   | +44   | 452   | 59                | 7018                   | +45   | 450   | 09                  | 9280                   | +45   | 449   | 59                  | 1584                   | +47   | 447   |
| 9.6010              | 0.010 4842             | +44   | 9.452 | 9.6060            | 0.010 7063             | +44   | 9.450 | 9.6110              | 0.010 9325             | +46   | 9.449 | 9.6160              | 0.011 1631             | +47   | 9.447 |
| 11                  | 4886                   | +44   | 452   | 61                | 7107                   | +45   | 450   | 11                  | 9374                   | +46   | 449   | 61                  | 1678                   | +46   | 447   |
| 12                  | 4930                   | +44   | 452   | 62                | 7152                   | +45   | 450   | 12                  | 9417                   | +45   | 449   | 62                  | 1724                   | +47   | 447   |
| 13                  | 4974                   | +44   | 452   | 63                | 7197                   | +45   | 450   | 13                  | 9462                   | +46   | 449   | 63                  | 1771                   | +46   | 447   |
| 14                  | 5018                   | +44   | 452   | 64                | 7242                   | +45   | 450   | 14                  | 9508                   | +46   | 449   | 64                  | 1817                   | +47   | 447   |
| 9.6015              | 0.010 5062             | +44   | 9.452 | 9.6065            | 0.010 7287             | +45   | 9.450 | 9.6115              | 0.010 9554             | +46   | 9.449 | 9.6165              | 0.011 1864             | +47   | 9.447 |
| 16                  | 5106                   | +45   | 452   | 66                | 7332                   | +45   | 450   | 16                  | 9600                   | +46   | 448   | 66                  | 1911                   | +46   | 447   |
| 17                  | 5151                   | +44   | 452   | 67                | 7377                   | +45   | 450   | 17                  | 9640                   | +45   | 448   | 67                  | 1957                   | +47   | 447   |
| 18                  | 5195                   | +44   | 452   | 68                | 7422                   | +45   | 450   | 18                  | 9691                   | +46   | 448   | 68                  | 2004                   | +47   | 447   |
| 19                  | 5239                   | +44   | 452   | 69                | 7467                   | +45   | 450   | 19                  | 9737                   | +46   | 448   | 69                  | 2051                   | +46   | 447   |
| 9.6020              | 0.010 5283             | +44   | 9.452 | 9.6070            | 0.010 7512             | +45   | 9.450 | 9.6120              | 0.010 9783             | +40   | 9.448 | 9.6170              | 0.011 2097             | +47   | 9.447 |
| 21                  | 5327                   | +44   | 451   | 71                | 7557                   | +45   | 450   | 21                  | 9829                   | +40   | 448   | 71                  | 2144                   | +47   | 447   |
| 22                  | 5371                   | +44   | 451   | 72                | 7602                   | +45   | 450   | 22                  | 9875                   | +40   | 448   | 72                  | 2191                   | +47   | 447   |
| 23                  | 5415                   | +45   | 451   | 73                | 7647                   | +45   | 450   | 23                  | 9921                   | +40   | 448   | 73                  | 2238                   | +46   | 447   |
| 24                  | 5460                   | +44   | 451   | 74                | 7692                   | +45   | 450   | 24                  | 9967                   | +45   | 448   | 74                  | 2284                   | +47   | 447   |
| 9.6025              | 0.010 5504             | +44   | 9.451 | 9.6075            | 0.010 7737             | +45   | 9.450 | 9.6125              | 0.011 0012             | +46   | 9.448 | 9.6175              | 0.011 2331             | +47   | 9.447 |
| 26                  | 5548                   | +44   | 451   | 76                | 7782                   | +45   | 450   | 26                  | 0058                   | +46   | 448   | 76                  | 2378                   | +47   | 447   |
| 27                  | 5592                   | +45   | 451   | 77                | 7827                   | +45   | 450   | 27                  | 0104                   | +40   | 448   | 77                  | 2425                   | +47   | 447   |
| 28                  | 5637                   | +44   | 451   | 78                | 7872                   | +45   | 450   | 28                  | 0150                   | +40   | 448   | 78                  | 2472                   | +47   | 446   |
| 29                  | 5681                   | +44   | 451   | 79                | 7917                   | +46   | 450   | 29                  | 0196                   | +46   | 448   | 79                  | 2519                   | +47   | 446   |
| 9.6030              | 0.010 5725             | +45   | 9.451 | 9.6080            | 0.010 7963             | +45   | 9.450 | 9.6130              | 0.011 0242             | +46   | 9.448 | 9.6180              | 0.011 2560             | +46   | 9.446 |
| 31                  | 5770                   | +44   | 451   | 81                | 8008                   | +45   | 450   | 31                  | 0288                   | +46   | 448   | 81                  | 2612                   | +47   | 446   |
| 32                  | 5814                   | +44   | 451   | 82                | 8053                   | +45   | 450   | 32                  | 0334                   | +47   | 448   | 82                  | 2659                   | +47   | 446   |
| 33                  | 5858                   | +45   | 451   | 83                | 8098                   | +45   | 450   | 33                  | 0381                   | +46   | 448   | 83                  | 2706                   | +47   | 446   |
| 34                  | 5903                   | +44   | 451   | 84                | 8143                   | +46   | 450   | 34                  | 0427                   | +46   | 448   | 84                  | 2753                   | +47   | 446   |
| 9.6035              | 0.010 5947             | +45   | 9.451 | 9.6085            | 0.010 8189             | +45   | 9.449 | 9.6135              | 0.011 0473             | +46   | 9.448 | 9.6185              | 0.011 2800             | +47   | 9.446 |
| 36                  | 5992                   | +44   | 451   | 86                | 8234                   | +45   | 449   | 36                  | 0519                   | +46   | 448   | 86                  | 2847                   | +47   | 446   |
| 37                  | 6036                   | +44   | 451   | 87                | 8279                   | +45   | 449   | 37                  | 0565                   | +40   | 448   | 87                  | 2894                   | +47   | 446   |
| 38                  | 6080                   | +45   | 451   | 88                | 8324                   | +45   | 449   | 38                  | 0611                   | +40   | 448   | 88                  | 2941                   | +47   | 446   |
| 39                  | 6125                   | +44   | 451   | 89                | 8370                   | +46   | 449   | 39                  | 0657                   | +47   | 448   | 89                  | 2988                   | +47   | 446   |
| 9.6040              | 0.010 6169             | +45   | 9.451 | 9.6090            | 0.010 8415             | +45   | 9.449 | 9.6140              | 0.011 0704             | +46   | 9.448 | 9.6190              | 0.011 3035             | +47   | 9.446 |
| 41                  | 6214                   | +44   | 451   | 91                | 8460                   | +46   | 449   | 41                  | 0750                   | +46   | 448   | 91                  | 3082                   | +48   | 446   |
| 42                  | 6258                   | +45   | 451   | 92                | 8506                   | +45   | 449   | 42                  | 0796                   | +46   | 448   | 92                  | 3130                   | +47   | 446   |
| 43                  | 6303                   | +45   | 451   | 93                | 8551                   | +45   | 449   | 43                  | 0842                   | +46   | 448   | 93                  | 3177                   | +47   | 446   |
| 44                  | 6347                   | +45   | 451   | 94                | 8597                   | +45   | 449   | 44                  | 0888                   | +47   | 448   | 94                  | 3224                   | +47   | 446   |
| 9.6045              | 0.010 6392             | +45   | 9.451 | 9.6095            | 0.010 8642             | +45   | 9.449 | 9.6145              | 0.011 0935             | +46   | 9.448 | 9.6195              | 0.011 3271             | +47   | 9.446 |
| 46                  | 6437                   | +44   | 451   | 96                | 8687                   | +46   | 449   | 46                  | 0981                   | +40   | 448   | 96                  | 3318                   | +47   | 446   |
| 47                  | 6481                   | +45   | 451   | 97                | 8733                   | +45   | 449   | 47                  | 1027                   | +47   | 447   | 97                  | 3365                   | +48   | 446   |
| 48                  | 6526                   | +45   | 451   | 98                | 8778                   | +46   | 449   | 48                  | 1074                   | +40   | 447   | 98                  | 3413                   | +47   | 446   |
| 49                  | 6570                   | +45   | 451   | 99                | 8824                   | +45   | 449   | 49                  | 1120                   | +46   | 447   | 99                  | 3460                   | +47   | 446   |
| 9.6050              | 0.010 6615             |       | 9.451 | 9.6100            | 0.010 8869             |       | 9.449 | 9.6150              | 0.011 1160             |       | 9.447 | 9.6200              | 0.011 3507             |       | 9.446 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  |
|----------------------|-------------------------|-------|--------|----------------------|-------------------------|-------|--------|----------------------|-------------------------|-------|--------|----------------------|-------------------------|-------|--------|
| 9° 6200              | 0° 011 3507             | +47   | 9° 446 | 9° 6250              | 0° 011 5892             | +48   | 9° 444 | 9° 6300              | 0° 011 8321             | +49   | 9° 442 | 9° 6350              | 0° 012 0796             | +50   | 9° 441 |
| 01                   | 3554                    | +48   | 446    | 51                   | 5940                    | +48   | 444    | 01                   | 8370                    | +49   | 442    | 51                   | 0840                    | +50   | 441    |
| 02                   | 3602                    | +47   | 446    | 52                   | 5988                    | +48   | 444    | 02                   | 8419                    | +49   | 442    | 52                   | 0896                    | +50   | 441    |
| 03                   | 3649                    | +47   | 446    | 53                   | 6036                    | +48   | 444    | 03                   | 8468                    | +49   | 442    | 53                   | 0946                    | +50   | 441    |
| 04                   | 3696                    | +47   | 446    | 54                   | 6084                    | +49   | 444    | 04                   | 8517                    | +50   | 442    | 54                   | 0996                    | +50   | 441    |
| 9° 6205              | 0° 011 3743             | +48   | 9° 446 | 9° 6255              | 0° 011 6133             | +48   | 9° 444 | 9° 6305              | 0° 011 8567             | +49   | 9° 442 | 9° 6355              | 0° 012 1046             | +50   | 9° 440 |
| 06                   | 3791                    | +47   | 446    | 56                   | 6181                    | +48   | 444    | 06                   | 8616                    | +49   | 442    | 56                   | 1096                    | +50   | 440    |
| 07                   | 3838                    | +48   | 446    | 57                   | 6229                    | +48   | 444    | 07                   | 8665                    | +49   | 442    | 57                   | 1146                    | +50   | 440    |
| 08                   | 3886                    | +47   | 445    | 58                   | 6277                    | +48   | 444    | 08                   | 8714                    | +49   | 442    | 58                   | 1196                    | +50   | 440    |
| 09                   | 3933                    | +47   | 445    | 59                   | 6326                    | +48   | 444    | 09                   | 8763                    | +49   | 442    | 59                   | 1246                    | +50   | 440    |
| 9° 6210              | 0° 011 3980             | +48   | 9° 445 | 9° 6260              | 0° 011 6374             | +48   | 9° 444 | 9° 6310              | 0° 011 8812             | +50   | 9° 442 | 9° 6360              | 0° 012 1296             | +51   | 9° 440 |
| 11                   | 4028                    | +47   | 445    | 61                   | 6422                    | +49   | 444    | 11                   | 8862                    | +49   | 442    | 61                   | 1347                    | +50   | 440    |
| 12                   | 4075                    | +48   | 445    | 62                   | 6471                    | +48   | 444    | 12                   | 8911                    | +49   | 442    | 62                   | 1397                    | +50   | 440    |
| 13                   | 4123                    | +47   | 445    | 63                   | 6519                    | +48   | 444    | 13                   | 8960                    | +50   | 442    | 63                   | 1447                    | +50   | 440    |
| 14                   | 4170                    | +48   | 445    | 64                   | 6567                    | +49   | 444    | 14                   | 9010                    | +49   | 442    | 64                   | 1497                    | +50   | 440    |
| 9° 6215              | 0° 011 4218             | +47   | 9° 445 | 9° 6265              | 0° 011 6610             | +48   | 9° 444 | 9° 6315              | 0° 011 9059             | +49   | 9° 442 | 9° 6365              | 0° 012 1547             | +51   | 9° 440 |
| 16                   | 4265                    | +48   | 445    | 66                   | 6664                    | +49   | 444    | 16                   | 9108                    | +49   | 442    | 66                   | 1598                    | +50   | 440    |
| 17                   | 4313                    | +47   | 445    | 67                   | 6713                    | +48   | 444    | 17                   | 9157                    | +50   | 442    | 67                   | 1648                    | +50   | 440    |
| 18                   | 4360                    | +48   | 445    | 68                   | 6761                    | +49   | 443    | 18                   | 9207                    | +49   | 442    | 68                   | 1698                    | +50   | 440    |
| 19                   | 4408                    | +48   | 445    | 69                   | 6810                    | +48   | 443    | 19                   | 9256                    | +50   | 442    | 69                   | 1748                    | +51   | 440    |
| 9° 6220              | 0° 011 4456             | +47   | 9° 445 | 9° 6270              | 0° 011 6858             | +49   | 9° 443 | 9° 6320              | 0° 011 9306             | +49   | 9° 442 | 9° 6370              | 0° 012 1799             | +50   | 9° 440 |
| 21                   | 4503                    | +48   | 445    | 71                   | 6907                    | +48   | 443    | 21                   | 9355                    | +49   | 442    | 71                   | 1849                    | +50   | 440    |
| 22                   | 4551                    | +47   | 445    | 72                   | 6955                    | +49   | 443    | 22                   | 9404                    | +50   | 442    | 72                   | 1899                    | +50   | 440    |
| 23                   | 4598                    | +48   | 445    | 73                   | 7004                    | +48   | 443    | 23                   | 9454                    | +49   | 442    | 73                   | 1950                    | +51   | 440    |
| 24                   | 4646                    | +48   | 445    | 74                   | 7052                    | +49   | 443    | 24                   | 9503                    | +50   | 442    | 74                   | 2000                    | +51   | 440    |
| 9° 6225              | 0° 011 4694             | +48   | 9° 445 | 9° 6275              | 0° 011 7101             | +48   | 9° 443 | 9° 6325              | 0° 011 9553             | +49   | 9° 442 | 9° 6375              | 0° 012 2051             | +50   | 9° 440 |
| 26                   | 4742                    | +47   | 445    | 76                   | 7149                    | +49   | 443    | 26                   | 9602                    | +50   | 441    | 76                   | 2101                    | +50   | 440    |
| 27                   | 4789                    | +48   | 445    | 77                   | 7198                    | +48   | 443    | 27                   | 9652                    | +49   | 441    | 77                   | 2151                    | +51   | 440    |
| 28                   | 4837                    | +48   | 445    | 78                   | 7247                    | +49   | 443    | 28                   | 9701                    | +50   | 441    | 78                   | 2202                    | +50   | 440    |
| 29                   | 4885                    | +47   | 445    | 79                   | 7295                    | +48   | 443    | 29                   | 9751                    | +50   | 441    | 79                   | 2252                    | +51   | 440    |
| 9° 6230              | 0° 011 4932             | +48   | 9° 445 | 9° 6280              | 0° 011 7344             | +49   | 9° 443 | 9° 6330              | 0° 011 9801             | +49   | 9° 441 | 9° 6380              | 0° 012 2303             | +50   | 9° 440 |
| 31                   | 4980                    | +48   | 445    | 81                   | 7393                    | +48   | 443    | 31                   | 9850                    | +50   | 441    | 81                   | 2353                    | +51   | 440    |
| 32                   | 5028                    | +48   | 445    | 82                   | 7441                    | +49   | 443    | 32                   | 9900                    | +49   | 441    | 82                   | 2404                    | +51   | 440    |
| 33                   | 5076                    | +48   | 445    | 83                   | 7490                    | +49   | 443    | 33                   | 9949                    | +50   | 441    | 83                   | 2455                    | +50   | 439    |
| 34                   | 5124                    | +48   | 445    | 84                   | 7539                    | +49   | 443    | 34                   | 9999                    | +50   | 441    | 84                   | 2505                    | +51   | 439    |
| 9° 6235              | 0° 011 5172             | +48   | 9° 445 | 9° 6285              | 0° 011 7588             | +48   | 9° 443 | 9° 6335              | 0° 012 0049             | +49   | 9° 441 | 9° 6385              | 0° 012 2556             | +50   | 9° 439 |
| 36                   | 5220                    | +47   | 445    | 86                   | 7636                    | +49   | 443    | 36                   | 0098                    | +50   | 441    | 86                   | 2606                    | +51   | 439    |
| 37                   | 5267                    | +48   | 445    | 87                   | 7685                    | +48   | 443    | 37                   | 0148                    | +50   | 441    | 87                   | 2657                    | +51   | 439    |
| 38                   | 5315                    | +48   | 444    | 88                   | 7734                    | +49   | 443    | 38                   | 0198                    | +50   | 441    | 88                   | 2708                    | +50   | 439    |
| 39                   | 5363                    | +48   | 444    | 89                   | 7783                    | +49   | 443    | 39                   | 0248                    | +49   | 441    | 89                   | 2758                    | +51   | 439    |
| 9° 6240              | 0° 011 5411             | +48   | 9° 444 | 9° 6290              | 0° 011 7832             | +49   | 9° 443 | 9° 6340              | 0° 012 0297             | +50   | 9° 441 | 9° 6390              | 0° 012 2809             | +51   | 9° 439 |
| 41                   | 5459                    | +48   | 444    | 91                   | 7881                    | +48   | 443    | 41                   | 0347                    | +50   | 441    | 91                   | 2860                    | +50   | 439    |
| 42                   | 5507                    | +48   | 444    | 92                   | 7929                    | +49   | 443    | 42                   | 0397                    | +50   | 441    | 92                   | 2910                    | +51   | 439    |
| 43                   | 5555                    | +48   | 444    | 93                   | 7978                    | +49   | 443    | 43                   | 0447                    | +50   | 441    | 93                   | 2961                    | +51   | 439    |
| 44                   | 5603                    | +48   | 444    | 94                   | 8027                    | +49   | 443    | 44                   | 0497                    | +49   | 441    | 94                   | 3012                    | +51   | 439    |
| 9° 6245              | 0° 011 5651             | +48   | 9° 444 | 9° 6295              | 0° 011 8076             | +49   | 9° 443 | 9° 6345              | 0° 012 0546             | +50   | 9° 441 | 9° 6395              | 0° 012 3063             | +50   | 9° 439 |
| 46                   | 5699                    | +48   | 444    | 96                   | 8125                    | +49   | 443    | 46                   | 0596                    | +50   | 441    | 96                   | 3113                    | +51   | 439    |
| 47                   | 5747                    | +48   | 444    | 97                   | 8174                    | +49   | 442    | 47                   | 0646                    | +50   | 441    | 97                   | 3164                    | +51   | 439    |
| 48                   | 5795                    | +49   | 444    | 98                   | 8223                    | +49   | 442    | 48                   | 0696                    | +50   | 441    | 98                   | 3215                    | +51   | 439    |
| 49                   | 5844                    | +48   | 444    | 99                   | 8272                    | +49   | 442    | 49                   | 0746                    | +50   | 441    | 99                   | 3266                    | +51   | 439    |
| 9° 6250              | 0° 011 5892             |       | 9° 444 | 9° 6300              | 0° 011 8321             |       | 9° 442 | 9° 6350              | 0° 012 0796             |       | 9° 441 | 9° 6400              | 0° 012 3317             |       | 9° 439 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g |
|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|
| 9.6400               | 0.012 3317              | +51   | 9.439 | 9.6450               | 0.012 5884              | +52   | 9.437 | 9.6500               | 0.012 8499              | +53   | 9.435 | 9.6550               | 0.013 1161              | +54   | 9.433 |
| 01                   | 3368                    | +51   | 439   | 51                   | 5936                    | +52   | 437   | 01                   | 8552                    | +53   | 435   | 51                   | 1215                    | +54   | 433   |
| 02                   | 3419                    | +51   | 439   | 52                   | 5988                    | +52   | 437   | 02                   | 8604                    | +53   | 435   | 52                   | 1269                    | +54   | 433   |
| 03                   | 3470                    | +50   | 439   | 53                   | 6040                    | +52   | 437   | 03                   | 8657                    | +53   | 435   | 53                   | 1323                    | +53   | 433   |
| 04                   | 3520                    | +51   | 439   | 54                   | 6092                    | +52   | 437   | 04                   | 8710                    | +53   | 435   | 54                   | 1376                    | +54   | 433   |
| 9.6405               | 0.012 3571              | +51   | 9.439 | 9.6455               | 0.012 6144              | +51   | 9.437 | 9.6505               | 0.012 8763              | +53   | 9.435 | 9.6555               | 0.013 1430              | +54   | 9.433 |
| 06                   | 3622                    | +51   | 439   | 56                   | 6195                    | +52   | 437   | 06                   | 8816                    | +53   | 435   | 56                   | 1484                    | +54   | 433   |
| 07                   | 3673                    | +51   | 439   | 57                   | 6247                    | +52   | 437   | 07                   | 8869                    | +53   | 435   | 57                   | 1538                    | +54   | 433   |
| 08                   | 3724                    | +51   | 439   | 58                   | 6299                    | +52   | 437   | 08                   | 8922                    | +53   | 435   | 58                   | 1592                    | +54   | 433   |
| 09                   | 3775                    | +52   | 439   | 59                   | 6351                    | +52   | 437   | 09                   | 8975                    | +53   | 435   | 59                   | 1646                    | +54   | 433   |
| 9.6410               | 0.012 3827              | +51   | 9.439 | 9.6460               | 0.012 6403              | +52   | 9.437 | 9.6510               | 0.012 9027              | +53   | 9.435 | 9.6560               | 0.013 1700              | +54   | 9.433 |
| 11                   | 3878                    | +51   | 438   | 61                   | 6455                    | +52   | 437   | 11                   | 9080                    | +53   | 435   | 61                   | 1754                    | +54   | 433   |
| 12                   | 3929                    | +51   | 438   | 62                   | 6507                    | +52   | 437   | 12                   | 9133                    | +53   | 435   | 62                   | 1808                    | +54   | 433   |
| 13                   | 3980                    | +51   | 438   | 63                   | 6559                    | +53   | 437   | 13                   | 9186                    | +53   | 435   | 63                   | 1861                    | +53   | 433   |
| 14                   | 4031                    | +51   | 438   | 64                   | 6612                    | +52   | 437   | 14                   | 9239                    | +54   | 435   | 64                   | 1915                    | +54   | 433   |
| 9.6415               | 0.012 4082              | +51   | 9.438 | 9.6465               | 0.012 6664              | +52   | 9.437 | 9.6515               | 0.012 9293              | +53   | 9.435 | 9.6565               | 0.013 1969              | +55   | 9.433 |
| 16                   | 4133                    | +51   | 438   | 66                   | 6716                    | +52   | 436   | 16                   | 9346                    | +53   | 435   | 66                   | 2024                    | +54   | 433   |
| 17                   | 4184                    | +52   | 438   | 67                   | 6768                    | +52   | 436   | 17                   | 9399                    | +53   | 435   | 67                   | 2078                    | +54   | 433   |
| 18                   | 4236                    | +51   | 438   | 68                   | 6820                    | +52   | 436   | 18                   | 9452                    | +53   | 435   | 68                   | 2132                    | +54   | 433   |
| 19                   | 4287                    | +51   | 438   | 69                   | 6872                    | +52   | 436   | 19                   | 9505                    | +53   | 435   | 69                   | 2186                    | +54   | 433   |
| 9.6420               | 0.012 4338              | +51   | 9.438 | 9.6470               | 0.012 6924              | +53   | 9.436 | 9.6520               | 0.012 9558              | +53   | 9.434 | 9.6570               | 0.013 2240              | +54   | 9.433 |
| 21                   | 4389                    | +52   | 438   | 71                   | 6977                    | +52   | 436   | 21                   | 9611                    | +53   | 434   | 71                   | 2294                    | +54   | 433   |
| 22                   | 4441                    | +51   | 438   | 72                   | 7029                    | +52   | 436   | 22                   | 9664                    | +53   | 434   | 72                   | 2348                    | +54   | 433   |
| 23                   | 4492                    | +51   | 438   | 73                   | 7081                    | +52   | 436   | 23                   | 9718                    | +53   | 434   | 73                   | 2402                    | +54   | 432   |
| 24                   | 4543                    | +52   | 438   | 74                   | 7133                    | +53   | 436   | 24                   | 9771                    | +53   | 434   | 74                   | 2456                    | +55   | 432   |
| 9.6425               | 0.012 4595              | +51   | 9.438 | 9.6475               | 0.012 7186              | +52   | 9.436 | 9.6525               | 0.012 9824              | +53   | 9.434 | 9.6575               | 0.013 2511              | +54   | 9.432 |
| 26                   | 4646                    | +51   | 438   | 76                   | 7238                    | +52   | 436   | 26                   | 9877                    | +54   | 434   | 76                   | 2565                    | +54   | 432   |
| 27                   | 4697                    | +52   | 438   | 77                   | 7290                    | +53   | 436   | 27                   | 9931                    | +53   | 434   | 77                   | 2619                    | +54   | 432   |
| 28                   | 4749                    | +52   | 438   | 78                   | 7343                    | +53   | 436   | 28                   | 9984                    | +53   | 434   | 78                   | 2673                    | +54   | 432   |
| 29                   | 4800                    | +51   | 438   | 79                   | 7395                    | +52   | 436   | 29                   | 10037                   | +53   | 434   | 79                   | 2728                    | +55   | 432   |
| 9.6430               | 0.012 4852              | +51   | 9.438 | 9.6480               | 0.012 7447              | +53   | 9.436 | 9.6530               | 0.013 0091              | +53   | 9.434 | 9.6580               | 0.013 2782              | +54   | 9.432 |
| 31                   | 4903                    | +52   | 438   | 81                   | 7500                    | +52   | 436   | 31                   | 0144                    | +53   | 434   | 81                   | 2836                    | +55   | 432   |
| 32                   | 4955                    | +51   | 438   | 82                   | 7552                    | +53   | 436   | 32                   | 0197                    | +54   | 434   | 82                   | 2891                    | +54   | 432   |
| 33                   | 5006                    | +52   | 438   | 83                   | 7605                    | +53   | 436   | 33                   | 0251                    | +53   | 434   | 83                   | 2945                    | +54   | 432   |
| 34                   | 5058                    | +51   | 438   | 84                   | 7657                    | +52   | 436   | 34                   | 0304                    | +54   | 434   | 84                   | 2999                    | +55   | 432   |
| 9.6435               | 0.012 5109              | +52   | 9.438 | 9.6485               | 0.012 7709              | +53   | 9.436 | 9.6535               | 0.013 0358              | +53   | 9.434 | 9.6585               | 0.013 3054              | +54   | 9.432 |
| 36                   | 5161                    | +51   | 438   | 86                   | 7762                    | +52   | 436   | 36                   | 0411                    | +53   | 434   | 86                   | 3108                    | +54   | 432   |
| 37                   | 5212                    | +52   | 438   | 87                   | 7814                    | +53   | 436   | 37                   | 0464                    | +53   | 434   | 87                   | 3163                    | +55   | 432   |
| 38                   | 5264                    | +51   | 438   | 88                   | 7867                    | +53   | 436   | 38                   | 0518                    | +54   | 434   | 88                   | 3217                    | +55   | 432   |
| 39                   | 5315                    | +52   | 437   | 89                   | 7920                    | +52   | 436   | 39                   | 0571                    | +54   | 434   | 89                   | 3272                    | +54   | 432   |
| 9.6440               | 0.012 5367              | +52   | 9.437 | 9.6490               | 0.012 7972              | +53   | 9.436 | 9.6540               | 0.013 0625              | +54   | 9.434 | 9.6590               | 0.013 3326              | +55   | 9.432 |
| 41                   | 5419                    | +51   | 437   | 91                   | 8025                    | +52   | 436   | 41                   | 0679                    | +53   | 434   | 91                   | 3381                    | +54   | 432   |
| 42                   | 5470                    | +52   | 437   | 92                   | 8077                    | +53   | 436   | 42                   | 0732                    | +54   | 434   | 92                   | 3435                    | +55   | 432   |
| 43                   | 5522                    | +52   | 437   | 93                   | 8130                    | +53   | 435   | 43                   | 0786                    | +53   | 434   | 93                   | 3490                    | +54   | 432   |
| 44                   | 5574                    | +51   | 437   | 94                   | 8183                    | +52   | 435   | 44                   | 0839                    | +54   | 434   | 94                   | 3544                    | +55   | 432   |
| 9.6445               | 0.012 5625              | +52   | 9.437 | 9.6495               | 0.012 8235              | +53   | 9.435 | 9.6545               | 0.013 0893              | +54   | 9.434 | 9.6595               | 0.013 3599              | +55   | 9.432 |
| 46                   | 5677                    | +52   | 437   | 96                   | 8288                    | +53   | 435   | 46                   | 0947                    | +53   | 434   | 96                   | 3654                    | +54   | 432   |
| 47                   | 5729                    | +52   | 437   | 97                   | 8341                    | +52   | 435   | 47                   | 1000                    | +54   | 433   | 97                   | 3708                    | +55   | 432   |
| 48                   | 5781                    | +51   | 437   | 98                   | 8393                    | +53   | 435   | 48                   | 1054                    | +54   | 433   | 98                   | 3763                    | +55   | 432   |
| 49                   | 5832                    | +52   | 437   | 99                   | 8446                    | +53   | 435   | 49                   | 1108                    | +53   | 433   | 99                   | 3818                    | +54   | 431   |
| 9.6450               | 0.012 5884              |       | 9.437 | 9.6500               | 0.012 8499              |       | 9.435 | 9.6550               | 0.013 1161              |       | 9.433 | 9.6600               | 0.013 3872              |       | 9.431 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g |
|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|
| 9.6600               | 0.013 3872              |       | 9.431 | 9.6650               | 0.013 6632              | +50   | 9.429 | 9.6700               | 0.013 9442              | +57   | 9.427 | 9.6750               | 0.014 2302              | +58   | 9.425 |
| 01                   | 3927                    | +55   | 431   | 51                   | 6688                    | +56   | 429   | 01                   | 9499                    | +56   | 427   | 51                   | 2300                    | +57   | 425   |
| 02                   | 3982                    | +55   | 431   | 52                   | 6744                    | +55   | 429   | 02                   | 9555                    | +57   | 427   | 52                   | 2417                    | +58   | 425   |
| 03                   | 4030                    | +54   | 431   | 53                   | 6799                    | +55   | 429   | 03                   | 9612                    | +57   | 427   | 53                   | 2475                    | +58   | 425   |
| 04                   | 4091                    | +55   | 431   | 54                   | 6855                    | +56   | 429   | 04                   | 9669                    | +57   | 427   | 54                   | 2533                    | +58   | 425   |
| 9.6605               | 0.013 4146              |       | 9.431 | 9.6655               | 0.013 6911              | +50   | 9.429 | 9.6705               | 0.013 9726              | +57   | 9.427 | 9.6755               | 0.014 2591              | +58   | 9.425 |
| 06                   | 4201                    | +55   | 431   | 56                   | 6967                    | +50   | 429   | 06                   | 9783                    | +56   | 427   | 56                   | 2649                    | +57   | 425   |
| 07                   | 4256                    | +55   | 431   | 57                   | 7023                    | +50   | 429   | 07                   | 9839                    | +57   | 427   | 57                   | 2706                    | +58   | 425   |
| 08                   | 4311                    | +55   | 431   | 58                   | 7078                    | +55   | 429   | 08                   | 9890                    | +57   | 427   | 58                   | 2764                    | +58   | 425   |
| 09                   | 4365                    | +54   | 431   | 59                   | 7134                    | +55   | 429   | 09                   | 9953                    | +57   | 427   | 59                   | 2822                    | +58   | 425   |
| 9.6610               | 0.013 4420              |       | 9.431 | 9.6660               | 0.013 7190              | +50   | 9.429 | 9.6710               | 0.014 0010              | +57   | 9.427 | 9.6760               | 0.014 2880              | +58   | 9.425 |
| 11                   | 4475                    | +55   | 431   | 61                   | 7240                    | +50   | 429   | 11                   | 0007                    | +57   | 427   | 61                   | 2938                    | +58   | 425   |
| 12                   | 4530                    | +55   | 431   | 62                   | 7302                    | +56   | 429   | 12                   | 0124                    | +57   | 427   | 62                   | 2996                    | +58   | 425   |
| 13                   | 4585                    | +55   | 431   | 63                   | 7358                    | +56   | 429   | 13                   | 0181                    | +57   | 427   | 63                   | 3054                    | +58   | 425   |
| 14                   | 4640                    | +55   | 431   | 64                   | 7414                    | +56   | 429   | 14                   | 0238                    | +57   | 427   | 64                   | 3112                    | +58   | 425   |
| 9.6615               | 0.013 4695              |       | 9.431 | 9.6665               | 0.013 7470              | +50   | 9.429 | 9.6715               | 0.014 0295              | +57   | 9.427 | 9.6765               | 0.014 3170              | +58   | 9.425 |
| 16                   | 4750                    | +55   | 431   | 66                   | 7520                    | +56   | 429   | 16                   | 0352                    | +57   | 427   | 66                   | 3228                    | +58   | 425   |
| 17                   | 4805                    | +55   | 431   | 67                   | 7582                    | +56   | 429   | 17                   | 0409                    | +57   | 427   | 67                   | 3286                    | +58   | 425   |
| 18                   | 4860                    | +55   | 431   | 68                   | 7638                    | +56   | 429   | 18                   | 0466                    | +57   | 427   | 68                   | 3344                    | +58   | 425   |
| 19                   | 4915                    | +55   | 431   | 69                   | 7694                    | +56   | 429   | 19                   | 0523                    | +57   | 427   | 69                   | 3402                    | +58   | 425   |
| 9.6620               | 0.013 4970              |       | 9.431 | 9.6670               | 0.013 7750              | +50   | 9.429 | 9.6720               | 0.014 0580              | +57   | 9.427 | 9.6770               | 0.014 3460              | +58   | 9.425 |
| 21                   | 5025                    | +55   | 431   | 71                   | 7806                    | +56   | 429   | 21                   | 0637                    | +57   | 427   | 71                   | 3518                    | +58   | 425   |
| 22                   | 5081                    | +56   | 431   | 72                   | 7862                    | +56   | 429   | 22                   | 0694                    | +57   | 427   | 72                   | 3576                    | +58   | 425   |
| 23                   | 5136                    | +55   | 431   | 73                   | 7919                    | +57   | 429   | 23                   | 0751                    | +57   | 427   | 73                   | 3635                    | +59   | 425   |
| 24                   | 5191                    | +55   | 431   | 74                   | 7975                    | +56   | 429   | 24                   | 0808                    | +58   | 427   | 74                   | 3693                    | +58   | 424   |
| 9.6625               | 0.013 5246              |       | 9.430 | 9.6675               | 0.013 8031              | +56   | 9.428 | 9.6725               | 0.014 0866              | +57   | 9.426 | 9.6775               | 0.014 3751              | +58   | 9.424 |
| 26                   | 5301                    | +55   | 430   | 76                   | 8087                    | +56   | 428   | 26                   | 0923                    | +57   | 426   | 76                   | 3809                    | +58   | 424   |
| 27                   | 5357                    | +56   | 430   | 77                   | 8143                    | +56   | 428   | 27                   | 0980                    | +57   | 426   | 77                   | 3868                    | +58   | 424   |
| 28                   | 5412                    | +55   | 430   | 78                   | 8200                    | +57   | 428   | 28                   | 1037                    | +58   | 426   | 78                   | 3926                    | +58   | 424   |
| 29                   | 5467                    | +55   | 430   | 79                   | 8256                    | +56   | 428   | 29                   | 1095                    | +57   | 426   | 79                   | 3984                    | +58   | 424   |
| 9.6630               | 0.013 5522              |       | 9.430 | 9.6680               | 0.013 8312              | +56   | 9.428 | 9.6730               | 0.014 1152              | +57   | 9.426 | 9.6780               | 0.014 4042              | +59   | 9.424 |
| 31                   | 5578                    | +56   | 430   | 81                   | 8368                    | +56   | 428   | 31                   | 1209                    | +57   | 426   | 81                   | 4101                    | +58   | 424   |
| 32                   | 5633                    | +55   | 430   | 82                   | 8425                    | +57   | 428   | 32                   | 1267                    | +57   | 426   | 82                   | 4159                    | +58   | 424   |
| 33                   | 5688                    | +55   | 430   | 83                   | 8481                    | +56   | 428   | 33                   | 1324                    | +57   | 426   | 83                   | 4217                    | +59   | 424   |
| 34                   | 5744                    | +56   | 430   | 84                   | 8537                    | +56   | 428   | 34                   | 1381                    | +58   | 426   | 84                   | 4270                    | +58   | 424   |
| 9.6635               | 0.013 5799              |       | 9.430 | 9.6685               | 0.013 8594              | +56   | 9.428 | 9.6735               | 0.014 1439              | +57   | 9.426 | 9.6785               | 0.014 4334              | +59   | 9.424 |
| 36                   | 5855                    | +55   | 430   | 86                   | 8650                    | +57   | 428   | 36                   | 1490                    | +58   | 426   | 86                   | 4393                    | +58   | 424   |
| 37                   | 5910                    | +55   | 430   | 87                   | 8707                    | +56   | 428   | 37                   | 1554                    | +57   | 426   | 87                   | 4451                    | +59   | 424   |
| 38                   | 5965                    | +55   | 430   | 88                   | 8763                    | +56   | 428   | 38                   | 1611                    | +57   | 426   | 88                   | 4510                    | +58   | 424   |
| 39                   | 6021                    | +56   | 430   | 89                   | 8820                    | +57   | 428   | 39                   | 1668                    | +58   | 426   | 89                   | 4568                    | +59   | 424   |
| 9.6640               | 0.013 6076              |       | 9.430 | 9.6690               | 0.013 8876              | +57   | 9.428 | 9.6740               | 0.014 1726              | +57   | 9.426 | 9.6790               | 0.014 4627              | +58   | 9.424 |
| 41                   | 6132                    | +56   | 430   | 91                   | 8933                    | +56   | 428   | 41                   | 1783                    | +58   | 426   | 91                   | 4685                    | +59   | 424   |
| 42                   | 6187                    | +55   | 430   | 92                   | 8989                    | +56   | 428   | 42                   | 1841                    | +58   | 426   | 92                   | 4744                    | +58   | 424   |
| 43                   | 6243                    | +56   | 430   | 93                   | 9046                    | +57   | 428   | 43                   | 1899                    | +58   | 426   | 93                   | 4802                    | +59   | 424   |
| 44                   | 6298                    | +55   | 430   | 94                   | 9102                    | +56   | 428   | 44                   | 1956                    | +58   | 426   | 94                   | 4861                    | +59   | 424   |
| 9.6645               | 0.013 6354              |       | 9.430 | 9.6695               | 0.013 9159              | +56   | 9.428 | 9.6745               | 0.014 2014              | +57   | 9.426 | 9.6795               | 0.014 4920              | +58   | 9.424 |
| 46                   | 6410                    | +56   | 430   | 96                   | 9215                    | +57   | 428   | 46                   | 2071                    | +58   | 426   | 96                   | 4978                    | +59   | 424   |
| 47                   | 6465                    | +55   | 430   | 97                   | 9272                    | +57   | 428   | 47                   | 2129                    | +58   | 426   | 97                   | 5037                    | +58   | 424   |
| 48                   | 6521                    | +56   | 430   | 98                   | 9329                    | +56   | 428   | 48                   | 2187                    | +57   | 426   | 98                   | 5095                    | +59   | 423   |
| 49                   | 6577                    | +55   | 430   | 99                   | 9385                    | +57   | 428   | 49                   | 2244                    | +58   | 426   | 99                   | 5154                    | +59   | 423   |
| 9.6650               | 0.013 6632              |       | 9.429 | 9.6700               | 0.013 9442              |       | 9.427 | 9.6750               | 0.014 2302              |       | 9.425 | 9.6800               | 0.014 5213              |       | 9.423 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g |
|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|
| 9.6800               | 0.014 5213              | +59   | 9.423 | 9.6850               | 0.014 8175              | +60   | 9.421 | 9.6900               | 0.015 1190              | +61   | 9.419 | 9.6950               | 0.015 4257              | +62   | 9.417 |
| 01                   | 5272                    | +58   | 423   | 51                   | 8235                    | +60   | 421   | 01                   | 1251                    | +60   | 419   | 51                   | 4319                    | +62   | 417   |
| 02                   | 5330                    | +59   | 423   | 52                   | 8295                    | +60   | 421   | 02                   | 1311                    | +61   | 419   | 52                   | 4381                    | +62   | 417   |
| 03                   | 5389                    | +59   | 423   | 53                   | 8355                    | +60   | 421   | 03                   | 1372                    | +61   | 419   | 53                   | 4443                    | +62   | 417   |
| 04                   | 5448                    | +59   | 423   | 54                   | 8415                    | +59   | 421   | 04                   | 1433                    | +61   | 419   | 54                   | 4505                    | +62   | 417   |
| 9.6805               | 0.014 5507              | +59   | 9.423 | 9.6855               | 0.014 8474              | +60   | 9.421 | 9.6905               | 0.015 1494              | +61   | 9.419 | 9.6955               | 0.015 4567              | +62   | 9.417 |
| 06                   | 5566                    | +59   | 423   | 56                   | 8534                    | +60   | 421   | 06                   | 1555                    | +61   | 419   | 56                   | 4629                    | +62   | 417   |
| 07                   | 5625                    | +58   | 423   | 57                   | 8594                    | +60   | 421   | 07                   | 1616                    | +61   | 419   | 57                   | 4691                    | +62   | 417   |
| 08                   | 5683                    | +59   | 423   | 58                   | 8654                    | +60   | 421   | 08                   | 1677                    | +61   | 419   | 58                   | 4753                    | +62   | 417   |
| 09                   | 5742                    | +59   | 423   | 59                   | 8714                    | +60   | 421   | 09                   | 1738                    | +61   | 419   | 59                   | 4815                    | +62   | 417   |
| 9.6810               | 0.014 5801              | +59   | 9.423 | 9.6860               | 0.014 8774              | +60   | 9.421 | 9.6910               | 0.015 1799              | +61   | 9.419 | 9.6960               | 0.015 4877              | +62   | 9.416 |
| 11                   | 5800                    | +59   | 423   | 61                   | 8834                    | +60   | 421   | 11                   | 1860                    | +61   | 419   | 61                   | 4939                    | +62   | 416   |
| 12                   | 5919                    | +59   | 423   | 62                   | 8894                    | +60   | 421   | 12                   | 1921                    | +61   | 419   | 62                   | 5001                    | +62   | 416   |
| 13                   | 5978                    | +59   | 423   | 63                   | 8954                    | +60   | 421   | 13                   | 1982                    | +61   | 419   | 63                   | 5063                    | +62   | 416   |
| 14                   | 6037                    | +59   | 423   | 64                   | 9014                    | +60   | 421   | 14                   | 2043                    | +61   | 419   | 64                   | 5125                    | +63   | 416   |
| 9.6815               | 0.014 6096              | +59   | 9.423 | 9.6865               | 0.014 9074              | +60   | 9.421 | 9.6915               | 0.015 2104              | +62   | 9.418 | 9.6965               | 0.015 5188              | +62   | 9.416 |
| 16                   | 6155                    | +59   | 423   | 66                   | 9134                    | +60   | 421   | 16                   | 2166                    | +61   | 418   | 66                   | 5250                    | +62   | 416   |
| 17                   | 6214                    | +59   | 423   | 67                   | 9194                    | +60   | 421   | 17                   | 2227                    | +61   | 418   | 67                   | 5312                    | +62   | 416   |
| 18                   | 6273                    | +60   | 423   | 68                   | 9254                    | +61   | 421   | 18                   | 2288                    | +61   | 418   | 68                   | 5374                    | +62   | 416   |
| 19                   | 6333                    | +59   | 423   | 69                   | 9315                    | +60   | 420   | 19                   | 2349                    | +61   | 418   | 69                   | 5436                    | +63   | 416   |
| 9.6820               | 0.014 6392              | +59   | 9.423 | 9.6870               | 0.014 9375              | +60   | 9.420 | 9.6920               | 0.015 2410              | +62   | 9.418 | 9.6970               | 0.015 5499              | +62   | 9.416 |
| 21                   | 6451                    | +59   | 423   | 71                   | 9435                    | +60   | 420   | 21                   | 2472                    | +61   | 418   | 71                   | 5561                    | +62   | 416   |
| 22                   | 6510                    | +59   | 422   | 72                   | 9495                    | +60   | 420   | 22                   | 2533                    | +61   | 418   | 72                   | 5623                    | +63   | 416   |
| 23                   | 6569                    | +59   | 422   | 73                   | 9555                    | +61   | 420   | 23                   | 2594                    | +61   | 418   | 73                   | 5686                    | +62   | 416   |
| 24                   | 6628                    | +60   | 422   | 74                   | 9616                    | +60   | 420   | 24                   | 2655                    | +62   | 418   | 74                   | 5748                    | +63   | 416   |
| 9.6825               | 0.014 6688              | +59   | 9.422 | 9.6875               | 0.014 9670              | +60   | 9.420 | 9.6925               | 0.015 2717              | +61   | 9.418 | 9.6975               | 0.015 5811              | +62   | 9.416 |
| 26                   | 6747                    | +59   | 422   | 76                   | 9730                    | +61   | 420   | 26                   | 2778                    | +62   | 418   | 76                   | 5873                    | +62   | 416   |
| 27                   | 6806                    | +59   | 422   | 77                   | 9791                    | +60   | 420   | 27                   | 2840                    | +61   | 418   | 77                   | 5935                    | +63   | 416   |
| 28                   | 6865                    | +60   | 422   | 78                   | 9852                    | +60   | 420   | 28                   | 2901                    | +61   | 418   | 78                   | 5998                    | +62   | 416   |
| 29                   | 6925                    | +59   | 422   | 79                   | 9913                    | +61   | 420   | 29                   | 2962                    | +62   | 418   | 79                   | 6060                    | +63   | 416   |
| 9.6830               | 0.014 6984              | +59   | 9.422 | 9.6880               | 0.014 9978              | +60   | 9.420 | 9.6930               | 0.015 3024              | +61   | 9.418 | 9.6980               | 0.015 6123              | +62   | 9.416 |
| 31                   | 7043                    | +60   | 422   | 81                   | 0038                    | +61   | 420   | 31                   | 3085                    | +62   | 418   | 81                   | 6185                    | +63   | 416   |
| 32                   | 7103                    | +59   | 422   | 82                   | 0099                    | +60   | 420   | 32                   | 3147                    | +61   | 418   | 82                   | 6248                    | +62   | 416   |
| 33                   | 7162                    | +60   | 422   | 83                   | 0159                    | +60   | 420   | 33                   | 3208                    | +62   | 418   | 83                   | 6310                    | +63   | 415   |
| 34                   | 7222                    | +59   | 422   | 84                   | 0219                    | +61   | 420   | 34                   | 3270                    | +61   | 418   | 84                   | 6373                    | +63   | 415   |
| 9.6835               | 0.014 7281              | +60   | 9.422 | 9.6885               | 0.015 0280              | +60   | 9.420 | 9.6935               | 0.015 3331              | +62   | 9.418 | 9.6985               | 0.015 6436              | +62   | 9.415 |
| 36                   | 7341                    | +59   | 422   | 86                   | 0340                    | +61   | 420   | 36                   | 3393                    | +61   | 418   | 86                   | 6498                    | +63   | 415   |
| 37                   | 7400                    | +60   | 422   | 87                   | 0401                    | +61   | 420   | 37                   | 3454                    | +62   | 418   | 87                   | 6561                    | +63   | 415   |
| 38                   | 7460                    | +59   | 422   | 88                   | 0462                    | +60   | 420   | 38                   | 3516                    | +62   | 417   | 88                   | 6624                    | +62   | 415   |
| 39                   | 7519                    | +60   | 422   | 89                   | 0522                    | +61   | 420   | 39                   | 3578                    | +61   | 417   | 89                   | 6686                    | +63   | 415   |
| 9.6840               | 0.014 7579              | +59   | 9.422 | 9.6890               | 0.015 0583              | +60   | 9.420 | 9.6940               | 0.015 3639              | +62   | 9.417 | 9.6990               | 0.015 6749              | +63   | 9.415 |
| 41                   | 7638                    | +60   | 422   | 91                   | 0643                    | +61   | 420   | 41                   | 3701                    | +62   | 417   | 91                   | 6812                    | +63   | 415   |
| 42                   | 7698                    | +59   | 422   | 92                   | 0704                    | +61   | 419   | 42                   | 3763                    | +61   | 417   | 92                   | 6875                    | +62   | 415   |
| 43                   | 7757                    | +60   | 422   | 93                   | 0765                    | +60   | 419   | 43                   | 3824                    | +62   | 417   | 93                   | 6937                    | +63   | 415   |
| 44                   | 7817                    | +60   | 422   | 94                   | 0825                    | +61   | 419   | 44                   | 3886                    | +62   | 417   | 94                   | 7000                    | +63   | 415   |
| 9.6845               | 0.014 7877              | +59   | 9.421 | 9.6895               | 0.015 0886              | +61   | 9.419 | 9.6945               | 0.015 3948              | +62   | 9.417 | 9.6995               | 0.015 7063              | +63   | 9.415 |
| 46                   | 7936                    | +60   | 421   | 96                   | 0947                    | +60   | 419   | 46                   | 4010                    | +61   | 417   | 96                   | 7126                    | +63   | 415   |
| 47                   | 7996                    | +60   | 421   | 97                   | 1007                    | +61   | 419   | 47                   | 4071                    | +62   | 417   | 97                   | 7189                    | +63   | 415   |
| 48                   | 8056                    | +60   | 421   | 98                   | 1068                    | +61   | 419   | 48                   | 4133                    | +62   | 417   | 98                   | 7252                    | +63   | 415   |
| 49                   | 8116                    | +59   | 421   | 99                   | 1129                    | +61   | 419   | 49                   | 4195                    | +62   | 417   | 99                   | 7315                    | +62   | 415   |
| 9.6850               | 0.014 8175              |       | 9.421 | 9.6900               | 0.015 1190              |       | 9.419 | 9.6950               | 0.015 4257              |       | 9.417 | 9.7000               | 0.015 7377              |       | 9.415 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g |
|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|
| 9'7000               | 0'015 7377              | +63   | 9'415 | 9'7050               | 0'016 0552              | +64   | 9'412 | 9'7100               | 0'016 3781              | +65   | 9'410 | 9'7150               | 0'016 7064              | +66   | 9'408 |
| 01                   | 7440                    | +63   | 415   | 51                   | 0616                    | +64   | 412   | 01                   | 3846                    | +65   | 410   | 51                   | 7130                    | +67   | 408   |
| 02                   | 7503                    | +63   | 415   | 52                   | 0680                    | +64   | 412   | 02                   | 3911                    | +65   | 410   | 52                   | 7197                    | +66   | 408   |
| 03                   | 7560                    | +63   | 415   | 53                   | 0744                    | +64   | 412   | 03                   | 3976                    | +65   | 410   | 53                   | 7263                    | +66   | 408   |
| 04                   | 7629                    | +63   | 415   | 54                   | 0808                    | +64   | 412   | 04                   | 4041                    | +65   | 410   | 54                   | 7329                    | +67   | 408   |
| 9'7005               | 0'015 7692              | +64   | 9'414 | 9'7055               | 0'016 0872              | +64   | 9'412 | 9'7105               | 0'016 4106              | +66   | 9'410 | 9'7155               | 0'016 7396              | +66   | 9'408 |
| 06                   | 7756                    | +63   | 414   | 56                   | 0936                    | +65   | 412   | 06                   | 4172                    | +65   | 410   | 56                   | 7462                    | +66   | 407   |
| 07                   | 7819                    | +63   | 414   | 57                   | 1001                    | +64   | 412   | 07                   | 4237                    | +65   | 410   | 57                   | 7528                    | +67   | 407   |
| 08                   | 7882                    | +63   | 414   | 58                   | 1065                    | +64   | 412   | 08                   | 4302                    | +65   | 410   | 58                   | 7595                    | +66   | 407   |
| 09                   | 7945                    | +63   | 414   | 59                   | 1129                    | +64   | 412   | 09                   | 4367                    | +66   | 410   | 59                   | 7661                    | +67   | 407   |
| 9'7010               | 0'015 8008              | +63   | 9'414 | 9'7060               | 0'016 1193              | +64   | 9'412 | 9'7110               | 0'016 4433              | +65   | 9'410 | 9'7160               | 0'016 7728              | +66   | 9'407 |
| 11                   | 8071                    | +63   | 414   | 61                   | 1257                    | +65   | 412   | 11                   | 4498                    | +66   | 410   | 61                   | 7794                    | +67   | 407   |
| 12                   | 8134                    | +64   | 414   | 62                   | 1322                    | +64   | 412   | 12                   | 4564                    | +65   | 410   | 62                   | 7861                    | +66   | 407   |
| 13                   | 8198                    | +63   | 414   | 63                   | 1386                    | +64   | 412   | 13                   | 4629                    | +65   | 409   | 63                   | 7927                    | +67   | 407   |
| 14                   | 8261                    | +63   | 414   | 64                   | 1450                    | +65   | 412   | 14                   | 4694                    | +66   | 409   | 64                   | 7994                    | +66   | 407   |
| 9'7015               | 0'015 8324              | +63   | 9'414 | 9'7065               | 0'016 1515              | +64   | 9'412 | 9'7115               | 0'016 4769              | +65   | 9'409 | 9'7165               | 0'016 8060              | +67   | 9'407 |
| 16                   | 8387                    | +64   | 414   | 66                   | 1579                    | +64   | 412   | 16                   | 4825                    | +66   | 409   | 66                   | 8127                    | +66   | 407   |
| 17                   | 8451                    | +63   | 414   | 67                   | 1643                    | +65   | 412   | 17                   | 4891                    | +65   | 409   | 67                   | 8193                    | +67   | 407   |
| 18                   | 8514                    | +63   | 414   | 68                   | 1708                    | +64   | 412   | 18                   | 4956                    | +66   | 409   | 68                   | 8260                    | +67   | 407   |
| 19                   | 8577                    | +64   | 414   | 69                   | 1772                    | +65   | 412   | 19                   | 5022                    | +65   | 409   | 69                   | 8327                    | +66   | 407   |
| 9'7020               | 0'015 8641              | +63   | 9'414 | 9'7070               | 0'016 1837              | +64   | 9'412 | 9'7120               | 0'016 5087              | +66   | 9'409 | 9'7170               | 0'016 8393              | +67   | 9'407 |
| 21                   | 8704                    | +63   | 414   | 71                   | 1901                    | +65   | 411   | 21                   | 5153                    | +66   | 409   | 71                   | 8460                    | +67   | 407   |
| 22                   | 8767                    | +64   | 414   | 72                   | 1966                    | +64   | 411   | 22                   | 5219                    | +65   | 409   | 72                   | 8527                    | +66   | 407   |
| 23                   | 8831                    | +63   | 414   | 73                   | 2030                    | +65   | 411   | 23                   | 5284                    | +66   | 409   | 73                   | 8593                    | +67   | 407   |
| 24                   | 8894                    | +64   | 414   | 74                   | 2095                    | +64   | 411   | 24                   | 5350                    | +65   | 409   | 74                   | 8660                    | +67   | 407   |
| 9'7025               | 0'015 8958              | +63   | 9'414 | 9'7075               | 0'016 2159              | +65   | 9'411 | 9'7125               | 0'016 5415              | +66   | 9'409 | 9'7175               | 0'016 8727              | +67   | 9'407 |
| 26                   | 9021                    | +64   | 414   | 76                   | 2224                    | +64   | 411   | 26                   | 5481                    | +66   | 409   | 76                   | 8794                    | +67   | 406   |
| 27                   | 9085                    | +63   | 413   | 77                   | 2288                    | +65   | 411   | 27                   | 5547                    | +66   | 409   | 77                   | 8860                    | +66   | 406   |
| 28                   | 9148                    | +63   | 413   | 78                   | 2353                    | +65   | 411   | 28                   | 5613                    | +65   | 409   | 78                   | 8927                    | +67   | 406   |
| 29                   | 9212                    | +64   | 413   | 79                   | 2418                    | +64   | 411   | 29                   | 5678                    | +66   | 409   | 79                   | 8994                    | +67   | 406   |
| 9'7030               | 0'015 9276              | +63   | 9'413 | 9'7080               | 0'016 2482              | +65   | 9'411 | 9'7130               | 0'016 5744              | +66   | 9'409 | 9'7180               | 0'016 9061              | +67   | 9'406 |
| 31                   | 9339                    | +64   | 413   | 81                   | 2547                    | +65   | 411   | 31                   | 5810                    | +66   | 409   | 81                   | 9128                    | +67   | 406   |
| 32                   | 9403                    | +63   | 413   | 82                   | 2612                    | +65   | 411   | 32                   | 5876                    | +66   | 409   | 82                   | 9195                    | +67   | 406   |
| 33                   | 9466                    | +64   | 413   | 83                   | 2677                    | +64   | 411   | 33                   | 5942                    | +65   | 409   | 83                   | 9262                    | +67   | 406   |
| 34                   | 9530                    | +64   | 413   | 84                   | 2741                    | +65   | 411   | 34                   | 6007                    | +66   | 409   | 84                   | 9329                    | +67   | 406   |
| 9'7035               | 0'015 9594              | +64   | 9'413 | 9'7085               | 0'016 2806              | +65   | 9'411 | 9'7135               | 0'016 6073              | +66   | 9'408 | 9'7185               | 0'016 9396              | +67   | 9'406 |
| 36                   | 9658                    | +63   | 413   | 86                   | 2871                    | +65   | 411   | 36                   | 6139                    | +66   | 408   | 86                   | 9463                    | +67   | 406   |
| 37                   | 9721                    | +64   | 413   | 87                   | 2936                    | +64   | 411   | 37                   | 6205                    | +66   | 408   | 87                   | 9530                    | +67   | 406   |
| 38                   | 9785                    | +64   | 413   | 88                   | 3001                    | +65   | 411   | 38                   | 6271                    | +66   | 408   | 88                   | 9597                    | +67   | 406   |
| 39                   | 9849                    | +64   | 413   | 89                   | 3065                    | +65   | 411   | 39                   | 6337                    | +66   | 408   | 89                   | 9664                    | +67   | 406   |
| 9'7040               | 0'015 9913              | +63   | 9'413 | 9'7090               | 0'016 3130              | +65   | 9'411 | 9'7140               | 0'016 6403              | +66   | 9'408 | 9'7190               | 0'016 9731              | +67   | 9'406 |
| 41                   | 9976                    | +64   | 413   | 91                   | 3195                    | +65   | 411   | 41                   | 6469                    | +66   | 408   | 91                   | 9798                    | +67   | 406   |
| 42                   | 016 0040                | +64   | 413   | 92                   | 3260                    | +65   | 410   | 42                   | 6535                    | +66   | 408   | 92                   | 9865                    | +68   | 406   |
| 43                   | 0104                    | +64   | 413   | 93                   | 3325                    | +65   | 410   | 43                   | 6601                    | +66   | 408   | 93                   | 9933                    | +67   | 406   |
| 44                   | 0168                    | +64   | 413   | 94                   | 3390                    | +65   | 410   | 44                   | 6667                    | +66   | 408   | 94                   | 017 0000                | +67   | 406   |
| 9'7045               | 0'016 0232              | +64   | 9'413 | 9'7095               | 0'016 3455              | +65   | 9'410 | 9'7145               | 0'016 6733              | +66   | 9'408 | 9'7195               | 0'017 0007              | +67   | 9'406 |
| 46                   | 0296                    | +64   | 413   | 96                   | 3520                    | +65   | 410   | 46                   | 6799                    | +66   | 408   | 96                   | 0134                    | +68   | 406   |
| 47                   | 0360                    | +64   | 413   | 97                   | 3585                    | +65   | 410   | 47                   | 6860                    | +66   | 408   | 97                   | 0202                    | +67   | 405   |
| 48                   | 0424                    | +64   | 413   | 98                   | 3650                    | +65   | 410   | 48                   | 6932                    | +66   | 408   | 98                   | 0269                    | +67   | 405   |
| 49                   | 0488                    | +64   | 412   | 99                   | 3715                    | +66   | 410   | 49                   | 6998                    | +66   | 408   | 99                   | 0336                    | +67   | 405   |
| 9'7050               | 0'016 0552              |       | 9'412 | 9'7100               | 0'016 3781              |       | 9'410 | 9'7150               | 0'016 7064              |       | 9'408 | 9'7200               | 0'017 0403              |       | 9'405 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|
| 9'7200               | 0'017 0403             | +68   | 9'405 | 9'7250               | 0'017 3799             | +68   | 9'403 | 9'7300               | 0'017 7251             | +69   | 9'400 | 9'7350               | 0'018 0700             | +71   | 9'398 |
| 01                   | 0471                   | +67   | 405   | 51                   | 3807                   | +69   | 403   | 01                   | 7320                   | +70   | 400   | 51                   | 0831                   | +70   | 398   |
| 02                   | 0538                   | +68   | 405   | 52                   | 3936                   | +68   | 403   | 02                   | 7390                   | +70   | 400   | 52                   | 0901                   | +71   | 398   |
| 03                   | 0606                   | +67   | 405   | 53                   | 4004                   | +69   | 403   | 03                   | 7460                   | +69   | 400   | 53                   | 0972                   | +71   | 398   |
| 04                   | 0673                   | +67   | 405   | 54                   | 4073                   | +68   | 403   | 04                   | 7529                   | +70   | 400   | 54                   | 1043                   | +71   | 398   |
| 9'7205               | 0'017 0740             | +68   | 9'405 | 9'7255               | 0'017 4141             | +69   | 9'403 | 9'7305               | 0'017 7599             | +70   | 9'400 | 9'7355               | 0'018 1114             | +71   | 9'398 |
| 06                   | 0808                   | +67   | 405   | 56                   | 4210                   | +69   | 403   | 06                   | 7669                   | +70   | 400   | 56                   | 1185                   | +71   | 398   |
| 07                   | 0875                   | +68   | 405   | 57                   | 4279                   | +68   | 403   | 07                   | 7739                   | +69   | 400   | 57                   | 1256                   | +71   | 397   |
| 08                   | 0943                   | +67   | 405   | 58                   | 4347                   | +69   | 402   | 08                   | 7808                   | +70   | 400   | 58                   | 1327                   | +71   | 397   |
| 09                   | 1010                   | +68   | 405   | 59                   | 4416                   | +69   | 402   | 09                   | 7878                   | +70   | 400   | 59                   | 1398                   | +71   | 397   |
| 9'7210               | 0'017 1078             | +68   | 9'405 | 9'7200               | 0'017 4485             | +68   | 9'402 | 9'7310               | 0'017 7948             | +70   | 9'400 | 9'7360               | 0'018 1469             | +71   | 9'397 |
| 11                   | 1146                   | +67   | 405   | 61                   | 4553                   | +69   | 402   | 11                   | 8018                   | +70   | 400   | 61                   | 1540                   | +71   | 397   |
| 12                   | 1213                   | +68   | 405   | 62                   | 4622                   | +69   | 402   | 12                   | 8088                   | +70   | 400   | 62                   | 1611                   | +71   | 397   |
| 13                   | 1281                   | +67   | 405   | 63                   | 4691                   | +69   | 402   | 13                   | 8158                   | +70   | 400   | 63                   | 1682                   | +71   | 397   |
| 14                   | 1348                   | +68   | 405   | 64                   | 4760                   | +68   | 402   | 14                   | 8228                   | +69   | 400   | 64                   | 1753                   | +71   | 397   |
| 9'7215               | 0'017 1416             | +68   | 9'405 | 9'7205               | 0'017 4828             | +69   | 9'402 | 9'7315               | 0'017 8297             | +70   | 9'400 | 9'7365               | 0'018 1824             | +71   | 9'397 |
| 16                   | 1484                   | +68   | 405   | 66                   | 4897                   | +69   | 402   | 16                   | 8367                   | +70   | 400   | 66                   | 1895                   | +71   | 397   |
| 17                   | 1552                   | +67   | 405   | 67                   | 4966                   | +69   | 402   | 17                   | 8437                   | +70   | 400   | 67                   | 1966                   | +71   | 397   |
| 18                   | 1619                   | +68   | 404   | 68                   | 5035                   | +69   | 402   | 18                   | 8507                   | +70   | 399   | 68                   | 2037                   | +71   | 397   |
| 19                   | 1687                   | +68   | 404   | 69                   | 5104                   | +69   | 402   | 19                   | 8577                   | +71   | 399   | 69                   | 2108                   | +72   | 397   |
| 9'7220               | 0'017 1755             | +68   | 9'404 | 9'7270               | 0'017 5173             | +69   | 9'402 | 9'7320               | 0'017 8648             | +70   | 9'399 | 9'7370               | 0'018 2180             | +71   | 9'397 |
| 21                   | 1823                   | +67   | 404   | 71                   | 5242                   | +69   | 402   | 21                   | 8718                   | +70   | 399   | 71                   | 2251                   | +71   | 397   |
| 22                   | 1890                   | +68   | 404   | 72                   | 5311                   | +69   | 402   | 22                   | 8788                   | +70   | 399   | 72                   | 2322                   | +71   | 397   |
| 23                   | 1958                   | +68   | 404   | 73                   | 5380                   | +69   | 402   | 23                   | 8858                   | +70   | 399   | 73                   | 2393                   | +72   | 397   |
| 24                   | 2026                   | +68   | 404   | 74                   | 5449                   | +69   | 402   | 24                   | 8928                   | +70   | 399   | 74                   | 2465                   | +71   | 397   |
| 9'7225               | 0'017 2094             | +68   | 9'404 | 9'7275               | 0'017 5518             | +69   | 9'402 | 9'7325               | 0'017 8998             | +70   | 9'399 | 9'7375               | 0'018 2530             | +71   | 9'397 |
| 26                   | 2162                   | +68   | 404   | 76                   | 5587                   | +69   | 402   | 26                   | 9068                   | +70   | 399   | 76                   | 2607                   | +72   | 397   |
| 27                   | 2230                   | +68   | 404   | 77                   | 5656                   | +69   | 402   | 27                   | 9139                   | +71   | 399   | 77                   | 2679                   | +71   | 396   |
| 28                   | 2298                   | +68   | 404   | 78                   | 5725                   | +69   | 401   | 28                   | 9209                   | +70   | 399   | 78                   | 2750                   | +72   | 396   |
| 29                   | 2366                   | +68   | 404   | 79                   | 5794                   | +69   | 401   | 29                   | 9279                   | +70   | 399   | 79                   | 2822                   | +71   | 396   |
| 9'7230               | 0'017 2434             | +68   | 9'404 | 9'7280               | 0'017 5803             | +69   | 9'401 | 9'7330               | 0'017 9349             | +71   | 9'399 | 9'7380               | 0'018 2893             | +71   | 9'396 |
| 31                   | 2502                   | +68   | 404   | 81                   | 5932                   | +70   | 401   | 31                   | 9420                   | +70   | 399   | 81                   | 2964                   | +72   | 396   |
| 32                   | 2570                   | +68   | 404   | 82                   | 6002                   | +69   | 401   | 32                   | 9490                   | +70   | 399   | 82                   | 3036                   | +71   | 396   |
| 33                   | 2638                   | +68   | 404   | 83                   | 6071                   | +69   | 401   | 33                   | 9560                   | +71   | 399   | 83                   | 3107                   | +72   | 396   |
| 34                   | 2706                   | +68   | 404   | 84                   | 6140                   | +69   | 401   | 34                   | 9631                   | +70   | 399   | 84                   | 3179                   | +72   | 396   |
| 9'7235               | 0'017 2774             | +68   | 9'404 | 9'7285               | 0'017 6209             | +69   | 9'401 | 9'7335               | 0'017 9701             | +71   | 9'399 | 9'7385               | 0'018 3251             | +71   | 9'396 |
| 36                   | 2842                   | +69   | 404   | 86                   | 6278                   | +70   | 401   | 36                   | 9772                   | +70   | 399   | 86                   | 3322                   | +72   | 396   |
| 37                   | 2911                   | +68   | 404   | 87                   | 6348                   | +69   | 401   | 37                   | 9842                   | +70   | 399   | 87                   | 3394                   | +71   | 396   |
| 38                   | 2979                   | +68   | 403   | 88                   | 6417                   | +69   | 401   | 38                   | 9912                   | +71   | 398   | 88                   | 3465                   | +72   | 396   |
| 39                   | 3047                   | +68   | 403   | 89                   | 6486                   | +70   | 401   | 39                   | 9983                   | +70   | 398   | 89                   | 3537                   | +72   | 396   |
| 9'7240               | 0'017 3115             | +68   | 9'403 | 9'7290               | 0'017 6556             | +69   | 9'401 | 9'7340               | 0'018 0053             | +71   | 9'398 | 9'7390               | 0'018 3609             | +71   | 9'396 |
| 41                   | 3183                   | +68   | 403   | 91                   | 6625                   | +70   | 401   | 41                   | 0124                   | +71   | 398   | 91                   | 3680                   | +72   | 396   |
| 42                   | 3252                   | +68   | 403   | 92                   | 6695                   | +69   | 401   | 42                   | 0195                   | +70   | 398   | 92                   | 3752                   | +72   | 396   |
| 43                   | 3320                   | +68   | 403   | 93                   | 6764                   | +69   | 401   | 43                   | 0265                   | +71   | 398   | 93                   | 3824                   | +72   | 396   |
| 44                   | 3388                   | +69   | 403   | 94                   | 6834                   | +69   | 401   | 44                   | 0336                   | +70   | 398   | 94                   | 3896                   | +71   | 396   |
| 9'7245               | 0'017 3457             | +68   | 9'403 | 9'7295               | 0'017 6903             | +70   | 9'401 | 9'7345               | 0'018 0406             | +71   | 9'398 | 9'7395               | 0'018 3967             | +72   | 9'396 |
| 46                   | 3525                   | +69   | 403   | 96                   | 6973                   | +69   | 401   | 46                   | 0477                   | +71   | 398   | 96                   | 4039                   | +72   | 395   |
| 47                   | 3594                   | +68   | 403   | 97                   | 7042                   | +70   | 401   | 47                   | 0548                   | +70   | 398   | 97                   | 4111                   | +72   | 395   |
| 48                   | 3662                   | +68   | 403   | 98                   | 7112                   | +69   | 400   | 48                   | 0618                   | +71   | 398   | 98                   | 4183                   | +72   | 395   |
| 49                   | 3730                   | +69   | 403   | 99                   | 7181                   | +70   | 400   | 49                   | 0689                   | +71   | 398   | 99                   | 4255                   | +72   | 395   |
| 9'7250               | 0'017 3799             |       | 9'403 | 9'7300               | 0'017 7251             |       | 9'400 | 9'7350               | 0'018 0700             |       | 9'398 | 9'7400               | 0'018 4327             |       | 9'395 |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff.  | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g  |       |      |     |       |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|--------|-------|----------------------|------------------------|-------|--------|-------|------|-----|-------|
| 9'7400               | 0'018                  | 4327  | +72   | 9'395                | 9'7450                 | 0'018 | 7952  | +73                  | 9'393                  | 9'7500 | 0'019 | 1635                 | +75                    | 9'390 | 9'7550 | 0'019 | 5378 | +76 | 9'387 |
| 01                   | 4399                   | +72   | 395   | 51                   | 8025                   | +73   | 393   | 01                   | 1710                   | +74    | 390   | 51                   | 5454                   | +75   | 387    |       |      |     |       |
| 02                   | 4471                   | +72   | 395   | 52                   | 8098                   | +73   | 393   | 02                   | 1784                   | +74    | 390   | 52                   | 5529                   | +76   | 387    |       |      |     |       |
| 03                   | 4543                   | +72   | 395   | 53                   | 8171                   | +73   | 392   | 03                   | 1858                   | +74    | 390   | 53                   | 5605                   | +75   | 387    |       |      |     |       |
| 04                   | 4615                   | +72   | 395   | 54                   | 8244                   | +73   | 392   | 04                   | 1933                   | +74    | 390   | 54                   | 5680                   | +75   | 387    |       |      |     |       |
| 9'7405               | 0'018                  | 4687  | +72   | 9'395                | 9'7455                 | 0'018 | 8317  | +74                  | 9'392                  | 9'7505 | 0'019 | 2007                 | +74                    | 9'390 | 9'7555 | 0'019 | 5756 | +75 | 9'387 |
| 06                   | 4759                   | +72   | 395   | 56                   | 8391                   | +73   | 392   | 06                   | 2081                   | +75    | 390   | 56                   | 5831                   | +76   | 387    |       |      |     |       |
| 07                   | 4831                   | +72   | 395   | 57                   | 8464                   | +73   | 392   | 07                   | 2156                   | +74    | 390   | 57                   | 5907                   | +75   | 387    |       |      |     |       |
| 08                   | 4903                   | +72   | 395   | 58                   | 8537                   | +73   | 392   | 08                   | 2230                   | +74    | 390   | 58                   | 5982                   | +75   | 387    |       |      |     |       |
| 09                   | 4975                   | +72   | 395   | 59                   | 8610                   | +74   | 392   | 09                   | 2305                   | +74    | 389   | 59                   | 6058                   | +76   | 387    |       |      |     |       |
| 9'7410               | 0'018                  | 5047  | +72   | 9'395                | 9'7460                 | 0'018 | 8884  | +73                  | 9'392                  | 9'7510 | 0'019 | 2379                 | +75                    | 9'389 | 9'7560 | 0'019 | 6134 | +75 | 9'387 |
| 11                   | 5119                   | +72   | 395   | 61                   | 8757                   | +73   | 392   | 11                   | 2454                   | +74    | 389   | 61                   | 6209                   | +75   | 387    |       |      |     |       |
| 12                   | 5191                   | +72   | 395   | 62                   | 8830                   | +73   | 392   | 12                   | 2528                   | +74    | 389   | 62                   | 6285                   | +76   | 387    |       |      |     |       |
| 13                   | 5264                   | +72   | 395   | 63                   | 8904                   | +73   | 392   | 13                   | 2603                   | +74    | 389   | 63                   | 6361                   | +75   | 386    |       |      |     |       |
| 14                   | 5336                   | +72   | 395   | 64                   | 8977                   | +74   | 392   | 14                   | 2677                   | +75    | 389   | 64                   | 6437                   | +75   | 386    |       |      |     |       |
| 9'7415               | 0'018                  | 5408  | +72   | 9'394                | 9'7465                 | 0'018 | 9051  | +73                  | 9'392                  | 9'7515 | 0'019 | 2752                 | +75                    | 9'389 | 9'7565 | 0'019 | 6512 | +76 | 9'386 |
| 16                   | 5480                   | +72   | 394   | 66                   | 9124                   | +73   | 392   | 16                   | 2827                   | +74    | 389   | 66                   | 6588                   | +75   | 386    |       |      |     |       |
| 17                   | 5553                   | +72   | 394   | 67                   | 9197                   | +73   | 392   | 17                   | 2901                   | +74    | 389   | 67                   | 6664                   | +75   | 386    |       |      |     |       |
| 18                   | 5625                   | +72   | 394   | 68                   | 9271                   | +73   | 392   | 18                   | 2976                   | +74    | 389   | 68                   | 6740                   | +75   | 386    |       |      |     |       |
| 19                   | 5697                   | +72   | 394   | 69                   | 9344                   | +74   | 392   | 19                   | 3051                   | +74    | 389   | 69                   | 6816                   | +75   | 386    |       |      |     |       |
| 9'7420               | 0'018                  | 5770  | +72   | 9'394                | 9'7470                 | 0'018 | 9418  | +74                  | 9'392                  | 9'7520 | 0'019 | 3125                 | +75                    | 9'389 | 9'7570 | 0'019 | 6892 | +76 | 9'386 |
| 21                   | 5842                   | +72   | 394   | 71                   | 9492                   | +73   | 391   | 21                   | 3200                   | +74    | 389   | 71                   | 6968                   | +75   | 386    |       |      |     |       |
| 22                   | 5914                   | +72   | 394   | 72                   | 9565                   | +73   | 391   | 22                   | 3275                   | +74    | 389   | 72                   | 7044                   | +76   | 386    |       |      |     |       |
| 23                   | 5987                   | +72   | 394   | 73                   | 9639                   | +73   | 391   | 23                   | 3350                   | +74    | 389   | 73                   | 7120                   | +75   | 386    |       |      |     |       |
| 24                   | 6059                   | +72   | 394   | 74                   | 9712                   | +74   | 391   | 24                   | 3424                   | +74    | 389   | 74                   | 7196                   | +76   | 386    |       |      |     |       |
| 9'7425               | 0'018                  | 6132  | +72   | 9'394                | 9'7475                 | 0'018 | 9786  | +74                  | 9'391                  | 9'7525 | 0'019 | 3499                 | +75                    | 9'389 | 9'7575 | 0'019 | 7272 | +76 | 9'386 |
| 26                   | 6204                   | +72   | 394   | 76                   | 9860                   | +73   | 391   | 26                   | 3574                   | +74    | 389   | 76                   | 7348                   | +75   | 386    |       |      |     |       |
| 27                   | 6277                   | +72   | 394   | 77                   | 9933                   | +73   | 391   | 27                   | 3649                   | +74    | 388   | 77                   | 7424                   | +76   | 386    |       |      |     |       |
| 28                   | 6349                   | +72   | 394   | 78                   | 010007                 | +74   | 391   | 28                   | 3724                   | +74    | 388   | 78                   | 7500                   | +75   | 386    |       |      |     |       |
| 29                   | 6422                   | +72   | 394   | 79                   | 0081                   | +74   | 391   | 29                   | 3799                   | +74    | 388   | 79                   | 7576                   | +76   | 386    |       |      |     |       |
| 9'7430               | 0'018                  | 6495  | +72   | 9'394                | 9'7480                 | 0'019 | 0155  | +74                  | 9'391                  | 9'7530 | 0'019 | 3874                 | +75                    | 9'388 | 9'7580 | 0'019 | 7652 | +76 | 9'386 |
| 31                   | 6567                   | +72   | 394   | 81                   | 0229                   | +73   | 391   | 31                   | 3949                   | +74    | 388   | 81                   | 7728                   | +75   | 385    |       |      |     |       |
| 32                   | 6640                   | +72   | 394   | 82                   | 0302                   | +73   | 391   | 32                   | 4024                   | +74    | 388   | 82                   | 7805                   | +76   | 385    |       |      |     |       |
| 33                   | 6713                   | +72   | 394   | 83                   | 0376                   | +73   | 391   | 33                   | 4099                   | +74    | 388   | 83                   | 7881                   | +75   | 385    |       |      |     |       |
| 34                   | 6785                   | +72   | 393   | 84                   | 0450                   | +74   | 391   | 34                   | 4174                   | +74    | 388   | 84                   | 7957                   | +76   | 385    |       |      |     |       |
| 9'7435               | 0'018                  | 6858  | +72   | 9'393                | 9'7485                 | 0'019 | 0524  | +74                  | 9'391                  | 9'7535 | 0'019 | 4249                 | +75                    | 9'388 | 9'7585 | 0'019 | 8033 | +77 | 9'385 |
| 36                   | 6931                   | +72   | 393   | 86                   | 0598                   | +73   | 391   | 36                   | 4324                   | +74    | 388   | 86                   | 8110                   | +75   | 385    |       |      |     |       |
| 37                   | 7004                   | +72   | 393   | 87                   | 0672                   | +73   | 391   | 37                   | 4399                   | +74    | 388   | 87                   | 8186                   | +76   | 385    |       |      |     |       |
| 38                   | 7076                   | +72   | 393   | 88                   | 0746                   | +73   | 391   | 38                   | 4474                   | +74    | 388   | 88                   | 8262                   | +75   | 385    |       |      |     |       |
| 39                   | 7149                   | +72   | 393   | 89                   | 0820                   | +74   | 390   | 39                   | 4550                   | +74    | 388   | 89                   | 8339                   | +76   | 385    |       |      |     |       |
| 9'7440               | 0'018                  | 7222  | +72   | 9'393                | 9'7490                 | 0'019 | 0894  | +74                  | 9'390                  | 9'7540 | 0'019 | 4625                 | +75                    | 9'388 | 9'7590 | 0'019 | 8415 | +77 | 9'385 |
| 41                   | 7295                   | +72   | 393   | 91                   | 0968                   | +73   | 390   | 41                   | 4700                   | +74    | 388   | 91                   | 8492                   | +75   | 385    |       |      |     |       |
| 42                   | 7368                   | +72   | 393   | 92                   | 1042                   | +73   | 390   | 42                   | 4775                   | +74    | 388   | 92                   | 8568                   | +76   | 385    |       |      |     |       |
| 43                   | 7441                   | +72   | 393   | 93                   | 1116                   | +73   | 390   | 43                   | 4850                   | +74    | 388   | 93                   | 8645                   | +75   | 385    |       |      |     |       |
| 44                   | 7514                   | +72   | 393   | 94                   | 1190                   | +74   | 390   | 44                   | 4926                   | +74    | 388   | 94                   | 8721                   | +76   | 385    |       |      |     |       |
| 9'7445               | 0'018                  | 7587  | +72   | 9'393                | 9'7495                 | 0'019 | 1264  | +74                  | 9'390                  | 9'7545 | 0'019 | 5001                 | +75                    | 9'387 | 9'7595 | 0'019 | 8798 | +76 | 9'385 |
| 46                   | 7660                   | +72   | 393   | 96                   | 1338                   | +73   | 390   | 46                   | 5076                   | +74    | 387   | 96                   | 8874                   | +75   | 385    |       |      |     |       |
| 47                   | 7733                   | +72   | 393   | 97                   | 1413                   | +73   | 390   | 47                   | 5152                   | +74    | 387   | 97                   | 8951                   | +76   | 385    |       |      |     |       |
| 48                   | 7806                   | +72   | 393   | 98                   | 1487                   | +73   | 390   | 48                   | 5227                   | +74    | 387   | 98                   | 9027                   | +75   | 385    |       |      |     |       |
| 49                   | 7879                   | +72   | 393   | 99                   | 1561                   | +74   | 390   | 49                   | 5303                   | +74    | 387   | 99                   | 9104                   | +76   | 384    |       |      |     |       |
| 9'7450               | 0'018                  | 7952  |       | 9'393                | 9'7500                 | 0'019 | 1635  |                      | 9'390                  | 9'7550 | 0'019 | 5378                 |                        | 9'387 | 9'7600 | 0'019 | 9180 |     | 9'384 |

| log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff.  | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin(E-M) | Diff. | log g  |       |      |     |       |     |
|----------------------|------------------------|-------|-------|----------------------|------------------------|-------|-------|----------------------|------------------------|--------|-------|----------------------|------------------------|-------|--------|-------|------|-----|-------|-----|
| 9'7600               | 0'019                  | 9180  | +77   | 9'384                | 9'7650                 | 0'020 | 3043  | +78                  | 9'382                  | 9'7700 | 0'020 | 6966                 | +79                    | 9'379 | 9'7750 | 0'021 | 0950 | +80 | 9'376 |     |
| 01                   | 9257                   | +77   | 384   | 51                   | 3121                   | +78   | 382   | 01                   | 7045                   | +79    | 379   | 51                   | 1030                   | +80   | 376    |       |      | +80 | 376   |     |
| 02                   | 9334                   | +76   | 384   | 52                   | 3199                   | +78   | 381   | 02                   | 7124                   | +79    | 379   | 52                   | 1110                   | +81   | 376    |       |      | +81 | 376   |     |
| 03                   | 9410                   | +77   | 384   | 53                   | 3277                   | +78   | 381   | 03                   | 7203                   | +79    | 379   | 53                   | 1191                   | +80   | 376    |       |      | +80 | 376   |     |
| 04                   | 9487                   | +77   | 384   | 54                   | 3355                   | +77   | 381   | 04                   | 7282                   | +80    | 378   | 54                   | 1271                   | +81   | 376    |       |      | +81 | 376   |     |
| 9'7605               | 0'019                  | 9564  | +77   | 9'384                | 9'7655                 | 0'020 | 3432  | +78                  | 9'381                  | 9'7705 | 0'020 | 7362                 | +79                    | 9'378 | 9'7755 | 0'021 | 1352 | +80 | 9'375 |     |
| 06                   | 9641                   | +77   | 384   | 56                   | 3510                   | +78   | 381   | 06                   | 7441                   | +79    | 378   | 56                   | 1432                   | +80   | 375    |       |      | +80 | 375   |     |
| 07                   | 9718                   | +77   | 384   | 57                   | 3588                   | +78   | 381   | 07                   | 7520                   | +79    | 378   | 57                   | 1512                   | +81   | 375    |       |      | +81 | 375   |     |
| 08                   | 9794                   | +76   | 384   | 58                   | 3667                   | +79   | 381   | 08                   | 7599                   | +79    | 378   | 58                   | 1593                   | +80   | 375    |       |      | +80 | 375   |     |
| 09                   | 9871                   | +77   | 384   | 59                   | 3745                   | +78   | 381   | 09                   | 7678                   | +80    | 378   | 59                   | 1673                   | +81   | 375    |       |      | +81 | 375   |     |
| 9'7610               | 0'019                  | 9948  | +77   | 9'384                | 9'7660                 | 0'020 | 3823  | +78                  | 9'381                  | 9'7710 | 0'020 | 7758                 | +79                    | 9'378 | 9'7760 | 0'021 | 1754 | +80 | 9'375 |     |
| 11                   | 020                    | 0025  | +77   | 384                  | 61                     | 3901  | +78   | 381                  | 11                     | 7837   | +79   | 378                  | 61                     | 1834  | +81    | 375   |      |     | +81   | 375 |
| 12                   | 0102                   | +77   | 384   | 62                   | 3979                   | +78   | 381   | 12                   | 7916                   | +80    | 378   | 62                   | 1915                   | +80   | 375    |       |      | +80 | 375   |     |
| 13                   | 0179                   | +77   | 384   | 63                   | 4057                   | +78   | 381   | 13                   | 7996                   | +79    | 378   | 63                   | 1996                   | +81   | 375    |       |      | +81 | 375   |     |
| 14                   | 0256                   | +77   | 384   | 64                   | 4135                   | +78   | 381   | 14                   | 8075                   | +80    | 378   | 64                   | 2076                   | +80   | 375    |       |      | +80 | 375   |     |
| 9'7615               | 0'020                  | 0333  | +77   | 9'384                | 9'7665                 | 0'020 | 4213  | +79                  | 9'381                  | 9'7715 | 0'020 | 8155                 | +79                    | 9'378 | 9'7765 | 0'021 | 2157 | +81 | 9'375 |     |
| 16                   | 0410                   | +77   | 384   | 66                   | 4292                   | +78   | 381   | 16                   | 8234                   | +80    | 378   | 66                   | 2238                   | +80   | 375    |       |      | +80 | 375   |     |
| 17                   | 0487                   | +77   | 383   | 67                   | 4370                   | +78   | 381   | 17                   | 8314                   | +79    | 378   | 67                   | 2318                   | +81   | 375    |       |      | +81 | 375   |     |
| 18                   | 0564                   | +77   | 383   | 68                   | 4448                   | +78   | 381   | 18                   | 8393                   | +80    | 378   | 68                   | 2399                   | +80   | 375    |       |      | +80 | 375   |     |
| 19                   | 0641                   | +77   | 383   | 69                   | 4526                   | +79   | 380   | 19                   | 8473                   | +79    | 378   | 69                   | 2480                   | +81   | 375    |       |      | +81 | 375   |     |
| 9'7620               | 0'020                  | 0718  | +77   | 9'383                | 9'7670                 | 0'020 | 4605  | +78                  | 9'380                  | 9'7720 | 0'020 | 8552                 | +80                    | 9'378 | 9'7770 | 0'021 | 2561 | +80 | 9'375 |     |
| 21                   | 0795                   | +78   | 383   | 71                   | 4683                   | +79   | 380   | 21                   | 8632                   | +79    | 377   | 71                   | 2641                   | +81   | 375    |       |      | +81 | 375   |     |
| 22                   | 0873                   | +77   | 383   | 72                   | 4762                   | +78   | 380   | 22                   | 8711                   | +80    | 377   | 72                   | 2722                   | +80   | 375    |       |      | +80 | 375   |     |
| 23                   | 0950                   | +77   | 383   | 73                   | 4840                   | +78   | 380   | 23                   | 8791                   | +80    | 377   | 73                   | 2803                   | +81   | 374    |       |      | +81 | 374   |     |
| 24                   | 1027                   | +77   | 383   | 74                   | 4918                   | +79   | 380   | 24                   | 8871                   | +79    | 377   | 74                   | 2884                   | +80   | 374    |       |      | +80 | 374   |     |
| 9'7625               | 0'020                  | 1104  | +77   | 9'383                | 9'7675                 | 0'020 | 4997  | +78                  | 9'380                  | 9'7725 | 0'020 | 8950                 | +80                    | 9'377 | 9'7775 | 0'021 | 2965 | +81 | 9'374 |     |
| 26                   | 1181                   | +78   | 383   | 76                   | 5075                   | +79   | 380   | 26                   | 9030                   | +80    | 377   | 76                   | 3046                   | +81   | 374    |       |      | +81 | 374   |     |
| 27                   | 1259                   | +77   | 383   | 77                   | 5154                   | +78   | 380   | 27                   | 9110                   | +79    | 377   | 77                   | 3127                   | +80   | 374    |       |      | +80 | 374   |     |
| 28                   | 1336                   | +77   | 383   | 78                   | 5232                   | +79   | 380   | 28                   | 9189                   | +80    | 377   | 78                   | 3208                   | +81   | 374    |       |      | +81 | 374   |     |
| 29                   | 1413                   | +78   | 383   | 79                   | 5311                   | +78   | 380   | 29                   | 9269                   | +80    | 377   | 79                   | 3289                   | +80   | 374    |       |      | +80 | 374   |     |
| 9'7630               | 0'020                  | 1491  | +77   | 9'383                | 9'7680                 | 0'020 | 5389  | +79                  | 9'380                  | 9'7730 | 0'020 | 9349                 | +80                    | 9'377 | 9'7780 | 0'021 | 3370 | +81 | 9'374 |     |
| 31                   | 1568                   | +77   | 383   | 81                   | 5468                   | +79   | 380   | 31                   | 9429                   | +80    | 377   | 81                   | 3451                   | +81   | 374    |       |      | +81 | 374   |     |
| 32                   | 1645                   | +78   | 383   | 82                   | 5547                   | +78   | 380   | 32                   | 9509                   | +79    | 377   | 82                   | 3532                   | +80   | 374    |       |      | +80 | 374   |     |
| 33                   | 1723                   | +77   | 383   | 83                   | 5625                   | +79   | 380   | 33                   | 9588                   | +80    | 377   | 83                   | 3613                   | +81   | 374    |       |      | +81 | 374   |     |
| 34                   | 1800                   | +78   | 383   | 84                   | 5704                   | +79   | 380   | 34                   | 9668                   | +80    | 377   | 84                   | 3694                   | +80   | 374    |       |      | +80 | 374   |     |
| 9'7635               | 0'020                  | 1878  | +77   | 9'382                | 9'7685                 | 0'020 | 5783  | +78                  | 9'380                  | 9'7735 | 0'020 | 9748                 | +80                    | 9'377 | 9'7785 | 0'021 | 3775 | +81 | 9'374 |     |
| 36                   | 1955                   | +78   | 382   | 86                   | 5861                   | +79   | 380   | 36                   | 9828                   | +80    | 377   | 86                   | 3856                   | +81   | 374    |       |      | +81 | 374   |     |
| 37                   | 2033                   | +77   | 382   | 87                   | 5940                   | +79   | 379   | 37                   | 9908                   | +80    | 377   | 87                   | 3937                   | +82   | 374    |       |      | +82 | 374   |     |
| 38                   | 2110                   | +78   | 382   | 88                   | 6019                   | +79   | 379   | 38                   | 9988                   | +80    | 376   | 88                   | 4019                   | +81   | 373    |       |      | +81 | 373   |     |
| 39                   | 2188                   | +78   | 382   | 89                   | 6098                   | +78   | 379   | 39                   | 021 0068               | +80    | 376   | 89                   | 4100                   | +81   | 373    |       |      | +81 | 373   |     |
| 9'7640               | 0'020                  | 2266  | +77   | 9'382                | 9'7690                 | 0'020 | 6176  | +79                  | 9'379                  | 9'7740 | 0'021 | 0148                 | +80                    | 9'376 | 9'7790 | 0'021 | 4181 | +81 | 9'373 |     |
| 41                   | 2343                   | +78   | 382   | 91                   | 6255                   | +79   | 379   | 41                   | 0228                   | +80    | 376   | 91                   | 4262                   | +82   | 373    |       |      | +82 | 373   |     |
| 42                   | 2421                   | +78   | 382   | 92                   | 6334                   | +79   | 379   | 42                   | 0308                   | +80    | 376   | 92                   | 4344                   | +81   | 373    |       |      | +81 | 373   |     |
| 43                   | 2499                   | +77   | 382   | 93                   | 6413                   | +79   | 379   | 43                   | 0388                   | +81    | 376   | 93                   | 4425                   | +80   | 373    |       |      | +80 | 373   |     |
| 44                   | 2576                   | +78   | 382   | 94                   | 6492                   | +79   | 379   | 44                   | 0469                   | +80    | 376   | 94                   | 4506                   | +82   | 373    |       |      | +82 | 373   |     |
| 9'7645               | 0'020                  | 2654  | +78   | 9'382                | 9'7695                 | 0'020 | 6571  | +79                  | 9'379                  | 9'7745 | 0'021 | 0549                 | +80                    | 9'376 | 9'7795 | 0'021 | 4588 | +81 | 9'373 |     |
| 46                   | 2732                   | +77   | 382   | 96                   | 6650                   | +79   | 379   | 46                   | 0629                   | +80    | 376   | 96                   | 4669                   | +82   | 373    |       |      | +82 | 373   |     |
| 47                   | 2809                   | +78   | 382   | 97                   | 6729                   | +79   | 379   | 47                   | 0709                   | +80    | 376   | 97                   | 4751                   | +81   | 373    |       |      | +81 | 373   |     |
| 48                   | 2887                   | +78   | 382   | 98                   | 6808                   | +79   | 379   | 48                   | 0789                   | +81    | 376   | 98                   | 4832                   | +80   | 373    |       |      | +80 | 373   |     |
| 49                   | 2965                   | +78   | 382   | 99                   | 6887                   | +79   | 379   | 49                   | 0870                   | +80    | 376   | 99                   | 4914                   | +81   | 373    |       |      | +81 | 373   |     |
| 9'7650               | 0'020                  | 3043  |       | 9'382                | 9'7700                 | 0'020 | 6966  |                      | 9'379                  | 9'7750 | 0'021 | 0950                 |                        | 9'376 | 9'7800 | 0'021 | 4995 |     | 9'373 |     |



| log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff.  | log g | log<br>± tg<br>(E-M) | log<br>E-M<br>sin (E-M) | Diff. | log g  |       |      |     |       |
|----------------------|-------------------------|-------|-------|----------------------|-------------------------|-------|-------|----------------------|-------------------------|--------|-------|----------------------|-------------------------|-------|--------|-------|------|-----|-------|
| 9.7800               | 0.021                   | 4995  | +82   | 9.373                | 9.7850                  | 0.021 | 9102  | +83                  | 9.370                   | 9.7900 | 0.022 | 3271                 | +84                     | 9.307 | 9.7950 | 0.022 | 7503 | +85 | 9.303 |
| 01                   |                         | 5077  | +81   | 373                  | 51                      |       | 9185  | +83                  | 370                     | 01     |       | 3355                 | +84                     | 367   | 51     |       | 7588 | +85 | 363   |
| 02                   |                         | 5158  | +82   | 373                  | 52                      |       | 9268  | +82                  | 370                     | 02     |       | 3439                 | +84                     | 307   | 52     |       | 7673 | +86 | 363   |
| 03                   |                         | 5240  | +81   | 373                  | 53                      |       | 9350  | +83                  | 370                     | 03     |       | 3523                 | +84                     | 366   | 53     |       | 7759 | +85 | 363   |
| 04                   |                         | 5321  | +82   | 373                  | 54                      |       | 9433  | +83                  | 369                     | 04     |       | 3607                 | +84                     | 366   | 54     |       | 7844 | +85 | 363   |
| 9.7805               | 0.021                   | 5403  | +82   | 9.372                | 9.7855                  | 0.021 | 9516  | +83                  | 9.369                   | 9.7905 | 0.022 | 3691                 | +85                     | 9.366 | 9.7955 | 0.022 | 7929 | +86 | 9.363 |
| 06                   |                         | 5485  | +81   | 372                  | 56                      |       | 9599  | +83                  | 369                     | 06     |       | 3776                 | +84                     | 366   | 56     |       | 8015 | +85 | 363   |
| 07                   |                         | 5566  | +82   | 372                  | 57                      |       | 9682  | +83                  | 369                     | 07     |       | 3860                 | +84                     | 366   | 57     |       | 8100 | +86 | 363   |
| 08                   |                         | 5648  | +82   | 372                  | 58                      |       | 9765  | +83                  | 369                     | 08     |       | 3944                 | +84                     | 366   | 58     |       | 8186 | +85 | 363   |
| 09                   |                         | 5730  | +82   | 372                  | 59                      |       | 9848  | +83                  | 369                     | 09     |       | 4028                 | +84                     | 366   | 59     |       | 8271 | +86 | 363   |
| 9.7810               | 0.021                   | 5812  | +81   | 9.372                | 9.7860                  | 0.021 | 9931  | +83                  | 9.369                   | 9.7910 | 0.022 | 4112                 | +85                     | 9.366 | 9.7960 | 0.022 | 8357 | +85 | 9.363 |
| 11                   |                         | 5893  | +82   | 372                  | 61                      |       | 0014  | +83                  | 369                     | 11     |       | 4197                 | +84                     | 366   | 61     |       | 8442 | +86 | 363   |
| 12                   |                         | 5975  | +82   | 372                  | 62                      |       | 0097  | +83                  | 369                     | 12     |       | 4281                 | +84                     | 366   | 62     |       | 8528 | +85 | 363   |
| 13                   |                         | 6057  | +82   | 372                  | 63                      |       | 0180  | +83                  | 369                     | 13     |       | 4365                 | +84                     | 366   | 63     |       | 8613 | +86 | 363   |
| 14                   |                         | 6139  | +82   | 372                  | 64                      |       | 0263  | +83                  | 369                     | 14     |       | 4450                 | +84                     | 366   | 64     |       | 8699 | +85 | 363   |
| 9.7815               | 0.021                   | 6221  | +82   | 9.372                | 9.7865                  | 0.022 | 0346  | +83                  | 9.369                   | 9.7915 | 0.022 | 4534                 | +84                     | 9.366 | 9.7965 | 0.022 | 8784 | +86 | 9.363 |
| 16                   |                         | 6303  | +81   | 372                  | 66                      |       | 0429  | +84                  | 369                     | 16     |       | 4618                 | +85                     | 366   | 66     |       | 8870 | +85 | 362   |
| 17                   |                         | 6384  | +82   | 372                  | 67                      |       | 0513  | +83                  | 369                     | 17     |       | 4703                 | +84                     | 366   | 67     |       | 8956 | +86 | 362   |
| 18                   |                         | 6466  | +82   | 372                  | 68                      |       | 0596  | +83                  | 369                     | 18     |       | 4787                 | +84                     | 366   | 68     |       | 9041 | +85 | 362   |
| 19                   |                         | 6548  | +82   | 372                  | 69                      |       | 0679  | +83                  | 369                     | 19     |       | 4872                 | +84                     | 365   | 69     |       | 9127 | +86 | 362   |
| 9.7820               | 0.021                   | 6630  | +82   | 9.371                | 9.7870                  | 0.022 | 0762  | +83                  | 9.368                   | 9.7920 | 0.022 | 4956                 | +85                     | 9.365 | 9.7970 | 0.022 | 9213 | +86 | 9.362 |
| 21                   |                         | 6712  | +83   | 371                  | 71                      |       | 0845  | +84                  | 368                     | 21     |       | 5041                 | +84                     | 365   | 71     |       | 9299 | +85 | 362   |
| 22                   |                         | 6795  | +82   | 371                  | 72                      |       | 0929  | +83                  | 368                     | 22     |       | 5125                 | +85                     | 365   | 72     |       | 9384 | +86 | 362   |
| 23                   |                         | 6877  | +82   | 371                  | 73                      |       | 1012  | +83                  | 368                     | 23     |       | 5210                 | +84                     | 365   | 73     |       | 9470 | +85 | 362   |
| 24                   |                         | 6959  | +82   | 371                  | 74                      |       | 1095  | +84                  | 368                     | 24     |       | 5294                 | +85                     | 365   | 74     |       | 9556 | +86 | 362   |
| 9.7825               | 0.021                   | 7041  | +82   | 9.371                | 9.7875                  | 0.022 | 1179  | +83                  | 9.368                   | 9.7925 | 0.022 | 5379                 | +85                     | 9.365 | 9.7975 | 0.022 | 9642 | +86 | 9.362 |
| 26                   |                         | 7123  | +82   | 371                  | 76                      |       | 1262  | +84                  | 368                     | 26     |       | 5464                 | +84                     | 365   | 76     |       | 9728 | +85 | 362   |
| 27                   |                         | 7205  | +82   | 371                  | 77                      |       | 1346  | +83                  | 368                     | 27     |       | 5548                 | +85                     | 365   | 77     |       | 9814 | +86 | 362   |
| 28                   |                         | 7287  | +82   | 371                  | 78                      |       | 1429  | +83                  | 368                     | 28     |       | 5633                 | +84                     | 365   | 78     |       | 9900 | +85 | 362   |
| 29                   |                         | 7370  | +82   | 371                  | 79                      |       | 1513  | +83                  | 368                     | 29     |       | 5718                 | +85                     | 365   | 79     |       | 9986 | +86 | 362   |
| 9.7830               | 0.021                   | 7452  | +82   | 9.371                | 9.7880                  | 0.022 | 1596  | +84                  | 9.368                   | 9.7930 | 0.022 | 5803                 | +84                     | 9.365 | 9.7980 | 0.023 | 0072 | +86 | 9.362 |
| 31                   |                         | 7534  | +82   | 371                  | 81                      |       | 1680  | +83                  | 368                     | 31     |       | 5887                 | +85                     | 365   | 81     |       | 0158 | +85 | 362   |
| 32                   |                         | 7616  | +83   | 371                  | 82                      |       | 1763  | +84                  | 368                     | 32     |       | 5972                 | +85                     | 365   | 82     |       | 0244 | +86 | 361   |
| 33                   |                         | 7699  | +82   | 371                  | 83                      |       | 1847  | +83                  | 368                     | 33     |       | 6057                 | +84                     | 365   | 83     |       | 0330 | +85 | 361   |
| 34                   |                         | 7781  | +82   | 371                  | 84                      |       | 1930  | +84                  | 368                     | 34     |       | 6142                 | +85                     | 365   | 84     |       | 0416 | +86 | 361   |
| 9.7835               | 0.021                   | 7863  | +83   | 9.371                | 9.7885                  | 0.022 | 2014  | +84                  | 9.368                   | 9.7935 | 0.022 | 6227                 | +85                     | 9.364 | 9.7985 | 0.023 | 0502 | +86 | 9.361 |
| 36                   |                         | 7946  | +82   | 371                  | 86                      |       | 2098  | +83                  | 368                     | 36     |       | 6312                 | +84                     | 364   | 86     |       | 0588 | +85 | 361   |
| 37                   |                         | 8028  | +83   | 371                  | 87                      |       | 2181  | +84                  | 367                     | 37     |       | 6396                 | +85                     | 364   | 87     |       | 0674 | +86 | 361   |
| 38                   |                         | 8111  | +82   | 370                  | 88                      |       | 2265  | +83                  | 367                     | 38     |       | 6481                 | +84                     | 364   | 88     |       | 0761 | +85 | 361   |
| 39                   |                         | 8193  | +83   | 370                  | 89                      |       | 2349  | +84                  | 367                     | 39     |       | 6566                 | +85                     | 364   | 89     |       | 0847 | +86 | 361   |
| 9.7840               | 0.021                   | 8276  | +82   | 9.370                | 9.7890                  | 0.022 | 2432  | +84                  | 9.367                   | 9.7940 | 0.022 | 6651                 | +85                     | 9.364 | 9.7990 | 0.023 | 0933 | +86 | 9.361 |
| 41                   |                         | 8358  | +83   | 370                  | 91                      |       | 2516  | +84                  | 367                     | 41     |       | 6736                 | +85                     | 364   | 91     |       | 1019 | +87 | 361   |
| 42                   |                         | 8441  | +82   | 370                  | 92                      |       | 2600  | +83                  | 367                     | 42     |       | 6821                 | +84                     | 364   | 92     |       | 1106 | +86 | 361   |
| 43                   |                         | 8523  | +83   | 370                  | 93                      |       | 2684  | +84                  | 367                     | 43     |       | 6907                 | +85                     | 364   | 93     |       | 1192 | +85 | 361   |
| 44                   |                         | 8606  | +83   | 370                  | 94                      |       | 2768  | +83                  | 367                     | 44     |       | 6992                 | +84                     | 364   | 94     |       | 1278 | +86 | 361   |
| 9.7845               | 0.021                   | 8689  | +82   | 9.370                | 9.7895                  | 0.022 | 2851  | +84                  | 9.367                   | 9.7945 | 0.022 | 7077                 | +85                     | 9.364 | 9.7995 | 0.023 | 1365 | +86 | 9.361 |
| 46                   |                         | 8771  | +83   | 370                  | 96                      |       | 2935  | +84                  | 367                     | 46     |       | 7162                 | +85                     | 364   | 96     |       | 1451 | +87 | 361   |
| 47                   |                         | 8854  | +83   | 370                  | 97                      |       | 3019  | +84                  | 367                     | 47     |       | 7247                 | +85                     | 364   | 97     |       | 1538 | +86 | 360   |
| 48                   |                         | 8937  | +82   | 370                  | 98                      |       | 3103  | +83                  | 367                     | 48     |       | 7332                 | +84                     | 364   | 98     |       | 1624 | +85 | 360   |
| 49                   |                         | 9019  | +83   | 370                  | 99                      |       | 3187  | +84                  | 367                     | 49     |       | 7417                 | +85                     | 364   | 99     |       | 1711 | +86 | 360   |
| 9.7850               | 0.021                   | 9102  |       | 9.370                | 9.7900                  | 0.022 | 3271  |                      | 9.367                   | 9.7950 | 0.022 | 7503                 |                         | 9.363 | 9.8000 | 0.023 | 1797 |     | 9.360 |



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