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ERRATA TO BULLETIN 50.

Page 14, insert (9) after expressions for ΔP.

Page 37, latitude 37° 15′ and 45′ longitude, read for X, 20.673 instead of 30.673.

Page 43, latitude 31° 00′ and 10′ longitude, read for abscissa, 9.891 instead of 8.891.

Page 46, latitude 46° 50′, read for meridional distance, 57.557 instead of 57.567.

Page 99, latitude 46° 50′ and 10′ longitude, read for abscissa, 16.687 instead of 11.687.

Page 107, first column of table, thirty-first argument, read 15 30 instead of 15 00.

Page 110, first column of table, seventh argument, read 12 07 30 instead of 12 70 30.

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UNITED STATES GEOLOGICAL SURVEY

J. W. POWELL, DIRECTOR

FORMULAS AND TABLES

TO

FACILITATE THE CONSTRUCTION AND USE OF MAPS

BY

ROBERT SIMPSON WOODWARD

WASHINGTON
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LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
Washington, D. C., January 9, 1889.

SIR: I have the honor to transmit herewith, through Mr. Henry Gannett, Geologist in charge of Geography, a series of mathematical formulas and tables designed to facilitate the construction and use of maps.

Manuscript copies of the tables were prepared for the Division of Geography in 1885–6. Constant use since then has demonstrated their utility. They have recently been revised and extended, and are here accompanied by an explanatory text.

The computations required in the preparation and revision of the tables were made chiefly by Mr. B. C. Washington, jr., and Mr. S. S. Gannett, who evinced a commendable zeal to render the work thoroughly accurate.

Very respectfully, your obedient servant,

R. S. WOODWARD,
In charge of Mathematical Division.

Hon. J. W. POWELL,
Director U. S. Geological Survey.

FORMULAS AND TABLES TO FACILITATE THE CONSTRUCTION AND USE OF MAPS.

By R. S. Woodward.

A. THEORY OF THE TABLES.

ADOPTED SPHEROID AND CONSTANTS THEREOF.

(1.) The spheroid on which the data given in the following tables depend is that whose elements were published by Clarke in 1866.* This spheroid undoubtedly represents very closely the true size and shape of the earth, and it is the one to which nearly all geodetic work in the United States is now referred.

The constants of the generating ellipse of this spheroid, whose numerical values are required in the computation of the tabular quantities, are defined as follows:

a = semi major axis,
b = semi minor axis,
e = eccentricity $= \sqrt{\left(1 - \frac{b^2}{a^2}\right)}$,
$n = (1 - \sqrt{1 - e^2})(1 + \sqrt{1 - e^2})^{-1}$.

The values of these constants and their logarithms are—

			log.
a	= 20926062	English feet,	7.3206875,
b	= 20855121	"	7.3192127,
e^2	= 0.00676866,		7.8305030 − 10,
n	= 0.00169792,		7.2299162 − 10.

PRINCIPAL RADII OF CURVATURE.

(2.) Of the derived quantities essential to the present purposes the most important are the principal radii of curvature of the adopted spheroid; and, as these radii and their reciprocals enter many of the formulas of

* Comparisons of Standards of Length, made at the Ordnance Survey Office, Southampton, England, by Capt. A. R. Clarke, R. E. Published by order of the Secretary of State for War, 1866.

geodesy, it will be advantageous to give expressions from which their logarithms may be readily computed. At any point on the spheroid let

φ = the astronomical latitude,
ρ_m = the radius of curvature of the meridian section,
ρ_n = the radius of curvature of the section normal to the meridian.

Then the values of the radii are—

$$\rho_m = a\,(1 - e^2)\,(1 - e^2 \sin^2 \varphi)^{-\frac{3}{2}}$$
$$\rho_n = a\,(1 - e^2 \sin^2 \varphi)^{-\frac{1}{2}} \qquad (1)$$

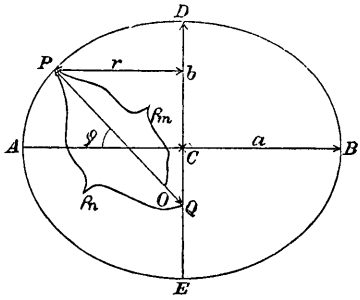

Fig. 1.

The geometrical relations of the quantities just defined are shown in Fig. 1, which represents a meridian section of the spheroid. P is any point whose geographical latitude is φ. Both radii of curvature coincide in direction with the normal PQ. ρ_n is that portion of the normal lying between P and the minor axis DE, or PQ; while ρ_m = PO is always less than ρ_n except when $\varphi = \pm 90°$, in which case the two radii are equal.

The logarithm of the radical which enters formulas (1) may be most readily computed by the following formula, viz:

$$\begin{aligned} \log (1 - e^2 \sin^2 \varphi)^{-\frac{1}{2}} = &+ \log (1 + n) \\ &- \mu n \cos 2\varphi \\ &+ \tfrac{1}{2} \mu n^2 \cos 4\varphi \\ &- \tfrac{1}{3} \mu n^3 \cos 6\varphi \\ &+ \ldots, \end{aligned} \qquad (2)$$

in which n has the value defined above and μ is the modulus of common logarithms. Introducing the values of the constants given above in formulas (1) and (2) there result—

Radius of curvature of meridian section ρ_m in feet.

$$\begin{aligned} \log \rho_m = &+ 7.3199482 \\ &- [4.34482] \cos 2\varphi \\ &+ [1.274] \cos 4\varphi \\ &- \ldots; \end{aligned} \qquad (3)$$

Radius of curvature of normal section ρ_n in feet.

$$\begin{aligned} \log \rho_n = &+ 7.3214243 \\ &- [3.86770] \cos 2\varphi \\ &+ [0.797] \cos 4\varphi \\ &- \ldots \end{aligned} \qquad (4)$$

The numbers inclosed in brackets in these formulas are the logarithms of the coefficients of the trigonometrical factors for units of the seventh decimal place.

The formulas (3) and (4) will give log ρ_m and log ρ_n within one unit in the seventh place of decimals, or ρ_m and ρ_n within $1/4000000$ part (about 5 feet), an accuracy about fifty times that of the semi axis a. The values of log ρ_m and log ρ_n are given in Tables I and II respectively, for every minute of latitude from latitude 21° to latitude 50°.

LENGTHS OF ARCS OF MERIDIAN.

(3.) For the computation of short meridional arcs lying between given parallels of latitude the following simple formulas suffice:

$$\begin{aligned} \Delta\varphi &= \varphi_2 - \varphi_1, \\ \varphi &= \tfrac{1}{2}(\varphi_2 + \varphi_1), \\ \Delta M &= \rho_m \, \Delta\varphi. \end{aligned} \tag{5}$$

In these, φ_1 and φ_2 are the latitudes of the ends of the arc, ΔM is the required length, and ρ_m is the meridian radius of curvature for the latitude φ of the middle point of the arc. The formula for ΔM implies that $\Delta\varphi$ is expressed in parts of the radius. If $\Delta\varphi$ is expressed in seconds, minutes, or degrees of arc, the formula becomes—

Meridional distance ΔM in feet.

$$\begin{aligned} \Delta M &= \frac{\rho_m \, \Delta\varphi \text{ (in seconds)}}{206264.8}, \\ &= \frac{\rho_m \, \Delta\varphi \text{ (in minutes)}}{3437.747}, \\ &= \frac{\rho_m \, \Delta\varphi \text{ (in degrees)}}{57.29578}; \end{aligned} \tag{6}$$

$$\begin{aligned} \log (1/206264.8) &= 4.6855749 - 10, \\ \log (1/3437.747) &= 6.4637261 - 10, \\ \log (1/57.29578) &= 8.2418774 - 10. \end{aligned}$$

φ_1, φ_2 = end latitudes of arc, $\Delta\varphi = \varphi_2 - \varphi_1$,
ρ_m = meridian radius of curvature for $\varphi = \frac{1}{2}(\varphi_2 + \varphi_1)$; for log ρ_m see Table I.

The relations (6) will answer most practical purposes when $\Delta\varphi$ does not exceed 5°. A comparison with the precise formula (7) below shows in fact that the error of (6) is very nearly

$$\tfrac{1}{8} e^2 \, \Delta\varphi^2 \cos 2\varphi \, . \, \Delta M,$$

which vanishes for $\varphi = 45°$, and which for $\Delta\varphi = 5°$ is at most $\frac{1}{155000} \Delta M$, or about 11 feet.

Numerical example. Suppose—

$$\begin{aligned} \varphi_2 &= 37° \ 29' \ 48''.17, \\ \varphi_1 &= 35° \ 48' \ 29''.89. \end{aligned}$$

Then

$$\begin{aligned} \varphi &= \tfrac{1}{2}(\varphi_2 + \varphi_1) = 36^\circ\ 39'\ \ 09''.03, \\ \Delta\varphi &= \varphi_2 - \varphi_1 = 1^\circ\ 41'\ \ 18''.28, \\ &= \qquad\qquad 6078''.28. \end{aligned}$$

From the first of (6)

cons't. log	4.6855749 — 10
Table I, log ρ_m	7.3193112
log $\Delta\varphi$	3.7837807
$\Delta M = 614705$ feet, log ΔM	5.7886668

The values of ΔM for intervals of 10″, 20″ . . . 60″, and for 10′, 20′ . . . 60′ are given in Table III for each degree of latitude from 25° to 49°.

For precise computation of long meridional arcs the following formula is adequate:

$$\begin{aligned} \Delta M = A_0\,\Delta\varphi &- A_1 \cos 2\varphi \sin \Delta\varphi \\ &+ A_2 \cos 4\varphi \sin 2\Delta\varphi \\ &- A_3 \cos 6\varphi \sin 3\Delta\varphi \\ &+ A_4 \cos 8\varphi \sin 4\Delta\varphi \\ &- \ . \ . \ . \ . \end{aligned} \qquad (7)$$

In this, ΔM, φ, and $\Delta\varphi$ have the same meanings as above, and A_0, A_1, . . . are functions of a and e or of a and n.

Thus, in terms of a and n,

$$\begin{aligned} A_0 &= a(1+n)^{-1}(1 + \tfrac{1}{4}n^2 + \tfrac{1}{64}n^4 + \ . \ . \ .), \\ A_1 &= 3a(1+n)^{-1}(n - \tfrac{1}{8}n^3 - \ . \ . \ .), \\ A_2 &= \tfrac{15}{8}a(1+n)^{-1}(n^2 - \tfrac{1}{4}n^4 - \ . \ . \ .), \\ A_3 &= \tfrac{35}{24}a(1+n)^{-1}(n^3 - \ . \ . \ .), \\ A_4 &= \tfrac{315}{256}a(1+n)^{-1}(n^4 - \ . \ . \ .). \end{aligned}$$

Introducing the adopted values of a and n, these constants become—

		log.
$A_0 =$	20890606 feet,	7.3199510,
$A_1 =$	106411 feet,	5.0269880,
$A_2 =$	113 feet,	2.0528,
$A_3 =$	0.15 feet,	9.174 — 10.

It appears, therefore, that the first three terms of (7) will give ΔM with an accuracy considerably surpassing that of the constant A_0. In

the use of (7) it will generally be most convenient to express $\Delta\varphi$ in degrees, and in this case A_0 must be divided by the number of degrees in the radius, viz: 57.2957795 [1.7581226]. Applying this value and writing the logarithms of A_0, A_1, etc., in rectangular brackets in place of A_0, A_1, etc., (7) becomes

Meridional distance ΔM in feet.

$$\begin{aligned} \Delta M = {} & [5.5618284]\ \Delta\varphi \text{ (in degrees)} \\ & - [5.0269880] \cos 2\varphi \sin \Delta\varphi \\ & + [2.0528] \cos 4\varphi \sin 2\ \Delta\varphi \\ & - \ . \ . \ . \ . \end{aligned} \tag{8}$$

$2\varphi = \varphi_2 + \varphi_1$, $\Delta\varphi = \varphi_2 - \varphi_1$, φ_1, φ_2 = end latitudes of arc.

Formula (8) will suffice for the calculation of any portion or the whole of a quadrant. The length of a quadrant is the value of the first term of (8) when $\varphi = 45°$ and $\Delta\varphi = 90°$, since all of the remaining terms vanish.

Numerical examples.—1°. Suppose

$$\varphi_1 = 0° \text{ and } \varphi_2 = 45°.$$

Then

$$2\varphi = 45°,$$
$$\Delta\varphi = 45°.$$

			log.
		cons't	5.5618284
		45	1.6532125
1st term +	16407443 feet	1st term	7.2150409
		cos 2φ	9.8494850 — 10
		sin $\Delta\varphi$	9.8494850 — 10
		cons't	5.0269880
2d term —	53205.7 feet	2d term	4.7259580

The third term of the series vanishes by reason of the factor cos $4\ \varphi$ = cos $90° = 0$. The sum of the first two terms, or length of a meridional arc from the equator to the parallel of 45°, is 16354237 feet.

2°. Suppose $\varphi_1 = 45°$ and $\varphi_2 = 90°$.

Then

$$2\varphi = 135°,$$
$$\Delta\varphi = 45°.$$

The numerical values of the terms will be the same as in the previous example, but the sign of the second term will be *plus*. Hence the length of the meridional arc between the parallel of 45° and the adjacent pole is 16460649 feet. The sum of these two computed distances, or the length of a quadrant, is 32814886 feet.

This agrees as it should with the length given by (8) when $2\varphi = 90°$ and $\Delta\varphi = 90°$.*

LENGTHS OF ARCS OF PARALLEL.

(4.) The radius of any parallel of latitude is equal to the product of the radius of curvature of the normal section for the same latitude by the cosine of that latitude. That is, see FIG. 1, r being the radius of the parallel—

$$r = \rho_n \cos \varphi,$$

and the entire length of the parallel is—

$$2 \pi r = 2 \pi \rho_n \cos \varphi.$$

Designate the portion of a parallel lying between meridians whose longitudes are λ_1 and λ_2 by ΔP, and call the difference of longitude $\lambda_2 - \lambda_1$, $\Delta\lambda$. Then—

Arc of parallel ΔP in feet.

$$\Delta P = \frac{2 \pi \rho_n \cos \varphi}{1296000} \Delta\lambda \text{ (in seconds)},$$

$$= \frac{2 \pi \rho_n \cos \varphi}{21600} \Delta\lambda \text{ (in minutes)},$$

$$= \frac{2 \pi \rho_n \cos \varphi}{360} \Delta\lambda \text{ (in degrees)}.$$

$$\log (2\pi/1296000) = 4.6855749 - 10,$$
$$\log (2\pi/21600) = 6.4637261 - 10,$$
$$\log (2\pi/360) = 8.2418774 - 10.$$

λ_1, λ_2 = end longitudes of arc, $\Delta\lambda = \lambda_2 - \lambda_1$,

ρ_n = radius of curvature of normal section for latitude of parallel; for $\log \rho_n$ see Table II.

Numerical example.—Suppose $\varphi = 35°$, and $\Delta\lambda = 72°$. Then from the third of (9)

		log.
cons't		8.2418774 — 10
Table II,	ρ_n	7.3211716
	$\cos\varphi$	9.9133645 — 10
	$\Delta\lambda$	1.8573325
	ΔP	7.3337460

$\Delta P = 21564827$ feet,

The values of ΔP for intervals of 10″, 20″ . . . 60″, and for 10′, 20′ . . . 60′ are given in Table IV for each degree of latitude from 25° to 49°.

* The best formula for computing the entire length of a meridian curve is this:

$$\pi (a + b) (1 + \tfrac{1}{4} n^2 + \tfrac{1}{64} n^4 + \ldots),$$

in which a, b, and n are the same as defined in section (1). For the values here adopted—

	log.
$(1 + \frac{1}{4} n^2 + \ldots)$	0.0000003
$(a + b)$	7.6209807
π	0.4971499
length	8.1181309

The length of the perimeter of the generating ellipse, or the meridian circumference of the earth, is, therefore—

131259550 feet = 24859.76 miles.

CO-ORDINATES FOR THE POLYCONIC PROJECTION OF MAPS.

(5.) In the polyconic system of map projection every parallel of latitude appears on the map as the developed circumference of the base of a right cone tangent to the spheroid along that parallel. Thus the parallel E F (FIG. 2) will appear in projection as the arc of a circle E O F (FIG. 3) whose radius O G $= l$ is equal to the slant height of the tangent cone E F G, (FIG. 2). Evidently one meridian and only one will appear as a straight line. This meridian is generally made the central meridian of the area to be projected. The distances along this central meridian between consecutive parallels are made equal (on the scale of the map) to the real distances along the surface of the spheroid. The circles in which the parallels are developed are not concentric, but their centers all lie on the central meridian. The meridians are concave toward the central meridian, and, except near the corners of maps showing large areas, they cross the parallels at angles differing little from right angles.

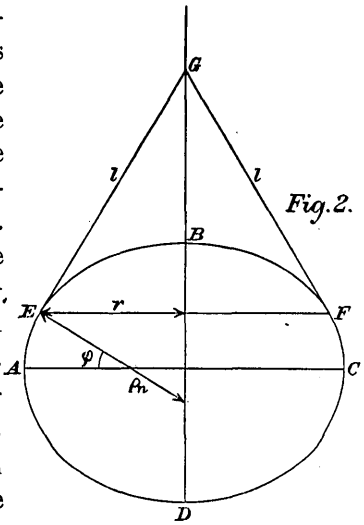

Fig. 2.

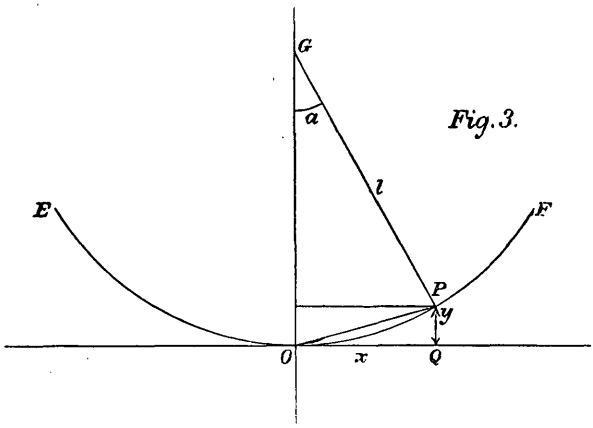

Fig. 3.

In the practical work of map making, the meridians and parallels are most advantageously defined by the co-ordinates of their points of intersection. These co-ordinates may be expressed in the following manner: For any parallel, as E O F (FIG. 3), take the origin O at the intersection with the central meridian, and let the rectangular axes of Y (O G) and X (O Q) be respectively coincident with and perpendicular to this meridian. Call the interval in longitude between the central meridian and the next adjacent one $\Delta\lambda$, and denote the angle at the center G subtended by the developed arc O P by α.

Then from FIG. 3 it appears that

$$x = l \sin\alpha,$$
$$y = 2\, l \sin^2 \tfrac{1}{2}\alpha.$$

But from FIGS. 2 and 3,

$$l = \rho_n \cot\varphi,$$
$$l\alpha = r\,\Delta\lambda = \rho_n\,\Delta\lambda\cos\varphi,$$

whence

$$\alpha = \Delta\lambda \sin\varphi.$$

Hence, in terms of known quantities there result

$$\begin{aligned} x &= \rho_n \cot\varphi \sin(\Delta\lambda \sin\varphi), \\ y &= 2\,\rho_n \cot\varphi \sin^2 \tfrac{1}{2}(\Delta\lambda \sin\varphi). \end{aligned} \qquad (10)$$

Numerical example.—Suppose $\varphi = 40°$ and $\Delta\lambda = 25° = 90000''$.

Then

$$\begin{aligned} &\log 90000'' &&= 4.9542425, \\ &\log \sin 40° &&= 9.8080675 - 10, \\ &\log 57850''.88 &&= 4.7623100; \\ &\Delta\lambda \sin\varphi &&= 16°\ 04'\ 10''.88, \\ &\tfrac{1}{2}(\Delta\lambda \sin\varphi) &&= 8°\ 02'\ 05''.44. \end{aligned}$$

	log.		log.
$\sin(\Delta\lambda \sin\varphi)$	9.4421760 — 10	$\sin \frac{1}{2}(\Delta\lambda \sin\varphi)$	9.1454305 — 10
$\cot\varphi$	0.0761865	" "	9.1454305 — 10
ρ_n, Table II	7.3212956	$\cot\varphi$	0.0761865
		ρ_n, Table II	7.3212956
		2	0.3010300
x	6.8396581	y	5.9893731
	$x = 6912865$ feet		$y = 975828$ feet.

The equations (10) are exact expressions for the co-ordinates. But when $\Delta\lambda$ is small, one may use the first terms in the expansions of $\sin(\Delta\lambda \sin\varphi)$ and $\sin^2 \frac{1}{2}(\Delta\lambda \sin\varphi)$ and reach results of a much simpler form.

Thus,

$$\begin{aligned} \sin(\Delta\lambda \sin\varphi) &= \Delta\lambda \sin\varphi - \tfrac{1}{6}(\Delta\lambda \sin\varphi)^3 + \ldots, \\ \sin^2 \tfrac{1}{2}(\Delta\varphi \sin\varphi) &= \tfrac{1}{4}(\Delta\lambda \sin\varphi)^2 - \tfrac{1}{48}(\Delta\lambda \sin\varphi)^4 + \ldots; \end{aligned}$$

whence, to terms of the second order,

$$\begin{aligned} x &= \rho_n\,\Delta\lambda\cos\varphi\,[1 - \tfrac{1}{6}(\Delta\lambda \sin\varphi)^2], \\ y &= \tfrac{1}{4}\,\rho_n\,(\Delta\lambda)^2 \sin 2\varphi\,[1 - \tfrac{1}{12}(\Delta\lambda \sin\varphi)^2]. \end{aligned} \qquad (11)$$

If the terms of the second order in these equations be neglected, the value of x will be too great by an amount somewhat less than $\frac{1}{6}(\Delta\lambda \sin\varphi)^2 . x$, and the value of y will be too great by an amount somewhat less than $\frac{1}{12}(\Delta\lambda \sin\varphi)^2 . y$. An idea of the magnitudes of these fractions of x and y may be gained from the following table, which gives the values of $\frac{1}{6}(\Delta\lambda \sin\varphi)^2$ for a few values of the arguments $\Delta\lambda$ and φ.

Values of $\frac{1}{6}(\Delta\lambda \sin\varphi)^2$.

$\Delta\lambda$	φ		
	20°	40°	60°
°			
1	1/168000	1/47700	1/26260
2	1/42000	1/11900	1/6560
3	1/18700	1/5300	1/2920

It appears from this table that the first terms of (11) will suffice in computing the co-ordinates for projection of all maps on ordinary scales, and of less extent in longitude than 2° from the middle meridian. For example, the value of x for $\Delta\lambda = 2°$ and $\varphi = 40°$, and for a scale of two miles to one inch (1/126720), is 53.063 inches less 1/11900 part, or about 0.004 inch, which may properly be regarded as a vanishing quantity in map construction. For the computation of the co-ordinates given in the following tables, where $\Delta\lambda$ does not exceed 1°, it is amply sufficient, therefore, to use

$$\begin{aligned} x &= \rho_n \, \Delta\lambda \cos\varphi, \\ y &= \tfrac{1}{4} \rho_n \, (\Delta\lambda)^2 \sin 2\varphi. \end{aligned} \tag{12}$$

In these formulas and in (11), if $\Delta\lambda$ is expressed in seconds, minutes, or degrees, it must be divided by the number of seconds, minutes, or degrees in the radius. The logarithms of the reciprocals of these numbers are given in equations (6) and (9) and also on the last page of this book. In the construction of tables like V to XI, it is most convenient, when English units are used, to express $\Delta\lambda$ in minutes and x and y in inches. For this purpose, supposing $\log \rho_n$ to be taken from Table II, if s be the scale of the map, or scale factor, equations (12) become—

Co-ordinates x and y in inches for scale s.

$$\begin{aligned} x &= \frac{12}{3437.747} \rho_n \, s \, \Delta\lambda \cos\varphi, \\ y &= \frac{3}{(3437.747)^2} \rho_n \, s \, (\Delta\lambda)^2 \sin 2\varphi, \\ &\Delta\lambda \text{ in minutes;} \\ \log (12/3437.747) &= 7.54291 - 10, \\ \log (3/(3437.747)^2) &= 3.4046 - 10. \end{aligned} \tag{13}$$

Tables V–XI give the values of x and y for various scales and for the zone of the earth's surface lying between 25° and 50°.

Numerical example.—Suppose $\varphi = 40°$ and $\Delta\lambda = 15'$; and let the scale of the map be one mile to the inch, or $s = 1/63360$. Then the calculation by (13) runs thus:

	log.		log.
cons't	7.54291 — 10	cons't	3.4046 — 10
ρ_n	7.32130	ρ_n	7.3213
s	5.19818 — 10	s	5.1982 — 10
15	1.17609	$(15)^2$	2.3522
$\cos\varphi$	9.88425 — 10	$\sin 2\varphi$	9.9934
x	1.12273	y	8.2697 — 10
	In.		In.
$x =$	13.266	$y =$	0.01861.

These values of x and y, it will be observed, agree with those corresponding to the same arguments in Table VIII, p. 45.

When many values for the same scale are to be computed log s should, of course, be combined with the constant logarithms of (13). Moreover, since in (13) x varies as $\Delta\lambda$ and y as $(\Delta\lambda)^2$, when several pairs of co-ordinates are to be computed for the same latitude, it will be most advantageous to compute the pair corresponding to the greatest common divisor of the several values of $\Delta\lambda$ and derive the other pairs by direct multiplication.

AREAS OF ZONES AND QUADRILATERALS OF THE EARTH'S SURFACE.

(6). An expression for the area of a zone of the earth's surface or of a quadrilateral bounded by meridians and parallels may be found in the following manner:

The area of an elementary zone dZ, whose middle latitude is φ and whose width is $\rho_m\, d\varphi$, is (see FIG. 1),

$$\begin{aligned} dZ &= 2\,\pi\, r\, \rho_m\, d\varphi \\ &= 2\,\pi\, \rho_m\, \rho_n \cos\varphi\, d\varphi. \end{aligned}$$

By means of the relations (1), this becomes

$$\begin{aligned} dZ &= 2\,\pi\, a^2 (1 - e^2) \frac{\cos\varphi\, d\varphi}{(1 - e^2 \sin^2\varphi)^2} \\ &= 2\,\pi\, a^2\, \frac{1 - e^2}{e}\, \frac{d\,(e \sin\varphi)}{(1 - e^2 \sin^2\varphi)^2}. \end{aligned} \tag{14}$$

The integral of this between limits corresponding to φ_1 and φ_2, or the area of a zone bounded by parallels whose latitudes are φ_1 and φ_2 respectively, is

$$Z = \pi\, a^2\, \frac{1 - e^2}{e} \left\{ \begin{array}{l} \dfrac{e \sin\varphi_2}{1 - e^2 \sin^2\varphi_2} - \dfrac{e \sin\varphi_1}{1 - e^2 \sin^2\varphi} \\ \\ + \frac{1}{2}\,\text{Nap. log}\, \dfrac{(1 + e \sin\varphi_2)\,(1 - e \sin\varphi_1)}{(1 - e \sin\varphi_2)\,(1 + e \sin\varphi_1)} \end{array} \right\}. \tag{15}$$

To get the area of the entire surface of the spheroid, make $\varphi_1 = -\frac{1}{2}\pi$ and $\varphi_2 = +\frac{1}{2}\pi$ in (15). The result is

$$\text{Surface of spheriod} = 2\pi a^2\left[1 + \frac{1-e^2}{2e}\,\text{Nap. log}\left(\frac{1+e}{1-e}\right)\right]. \quad (16)$$

For numerical applications it is most advantageous to express (16) in a series of powers of e. Thus, by Maclaurin's theorem,

$$\text{Surface of spheroid} = 4\pi a^2\left(1 - \frac{e^2}{3} - \frac{e^4}{15} - \frac{e^6}{35} - \ldots\right). \quad (17)$$

For the calculation of areas of zones and quadrilaterals it is also most advantageous to expand (15) in a series of powers of $e \sin \varphi_1$ and $e \sin \varphi_2$ and express the result in terms of multiples of the half sum and half difference of φ_1 and φ_2. Thus, (15) readily assumes the form

$$Z = 2\pi a^2(1-e^2)\left[(\sin\varphi_2 - \sin\varphi_1) + \frac{2}{3}e^2(\sin^3\varphi_2 - \sin^3\varphi_1) + \ldots\right]$$

From this, by substitution and reduction, there results

$$Z = 2\pi\left\{\begin{array}{l} C_1 \cos\varphi \sin\frac{1}{2}\Delta\varphi - C_2 \cos 3\varphi \sin\frac{3}{2}\Delta\varphi \\ + C_3 \cos 5\varphi \sin\frac{5}{2}\Delta\varphi - . \end{array}\right\}, \quad (18)$$

wherein

$$\begin{aligned} \varphi &= \tfrac{1}{2}(\varphi_2 + \varphi_1), \\ \Delta\varphi &= \varphi_2 - \varphi_1, \\ C_1 &= 2a^2\left(1 - \frac{e^2}{2} - \frac{e^4}{8} - \frac{e^6}{16} - \ldots\right), \\ C_2 &= 2a^2\left(\frac{e^2}{6} + \frac{e^4}{48} + 0 + \ldots\right), \\ C_3 &= 2a^2\left(\frac{3e^4}{80} + \frac{e^6}{40} + \ldots\right). \end{aligned} \quad (19)$$

If Q be the area of a quadrilateral bounded by the parallels whose latitudes are φ_1 and φ_2 and by meridians whose difference of longitude is $\Delta\lambda$,

$$Q = \frac{\Delta\lambda}{2\pi} Z.$$

Hence, using the English mile as unit of length, (18) and (19) give for the adopted spheroid—

Area of quadrilateral in square miles.

$$Q = \Delta\lambda \text{ (in degrees)} \left\{\begin{array}{l} c_1 \cos\varphi \sin\frac{1}{2}\Delta\varphi - c_2 \cos 3\varphi \sin\frac{3}{2}\Delta\varphi \\ + c_3 \cos 5\varphi \sin\frac{5}{2}\Delta\varphi - \ldots \end{array}\right\},$$

$$\begin{aligned} \log c_1{}^* &= 5.7375398, \\ \log c_2 &= 2.79173, \\ \log c_3 &= 9.976 - 10. \end{aligned} \quad (20)$$

$\varphi = \frac{1}{2}(\varphi_2 + \varphi_1)$, $\Delta\varphi = \varphi_2 - \varphi_1$,
φ_1, φ_2 = latitudes of bounding parallels,
$\Delta\lambda$ = difference of longitude of bounding meridians.

* c_1, c_2, c_3 are obtained from C_1, C_2, C_3 respectively by dividing the latter by the number of degrees in the radius, viz: 57.29578.

Numerical examples.—1°. Suppose $\varphi_1 = 0$, $\varphi_2 = 90°$ and $\Delta\lambda = 360°$. Then (20) should give the area of a hemispheroid. The calculation runs thus:

	log.		log.		log.
c_1	5.7375398	c_2	2.79173	c_3	$9.976 - 10$
$\cos\varphi$	$9.8494850 - 10$	$\cos 3\varphi$	$9.84948_n - 10$	$\cos 5\varphi$	$9.849_n - 10$
$\sin \frac{1}{2}\Delta\varphi$	$9.8494850 - 10$	$\sin \frac{3}{2}\Delta\varphi$	$9.84949 - 10$	$\sin \frac{5}{2}\Delta\varphi$	$9.848_n - 10$
360	2.5563025	360	2.55630	360	2.556
Sum	7.9928123		5.04700_n		2.229

Hence—

1st term	= +	98358591
2d term	= +	111429
3d term	= +	169
Q =	sum =	98470189

Twice this is the area of the spheroidal surface of the earth; *i. e.* 196940378 square miles.

2°. The last result may be checked by (17). Thus,

$$\left(\frac{e^2}{3} + \frac{e^4}{15} + \ldots\right) = 0.00225928$$

$$\log\left(1 - \frac{e^2}{3} - \ldots\right) = 9.9990177$$

$$\log a^2 = 7.1961072$$

$$\log 4\pi = 1.0992099$$

$$\log (196940407) = 8.2943348.$$

This number agrees with the number derived above as closely as 7-place logarithms will permit, the discrepancy between the two values being about $\frac{1}{6000000}$ part of the area. Hence, with a precision somewhat greater than the precision of the elements of the adopted spheroid warrants,

Area earth's surface = 196 940 400 square miles.

The areas of quadrilaterals of the earth's surface bounded by meridians and parallels of 1°, 30′, 15′, and 10′ extent respectively, in latitude and longitude, are given in Tables XII–XV.

B. EXPLANATION OF USE OF TABLES.

(7.) Table I gives the logarithms of the meridian radius of curvature of the earth for each minute of latitude from 21° to 51°. The unit of length is the English foot. The method of computing these logarithms is explained in section (2). Logarithms corresponding to arguments falling between the tabular arguments are derived by interpolation, this process

being facilitated by the side tables of proportional parts. For example, log ρ_m for latitude 27° 39′ 42″ is found thus:

log ρ_m for 27° 39′	7.3186882	Tabular dif. 11.
tabular correction for 42″, or $\frac{42}{60} \times 11$, + 8		
log ρ_m for 27° 39′ 42″	7.3186890	

(8.) Table II gives the logarithms of the radius of curvature of the normal section. It is in all respects similar to Table I. Its derivation is explained in section (2).

(9.) Table III gives lengths of terrestrial arcs of meridians corresponding to latitude intervals of 10″, 20″ . . . 60″ and 10′, 20′ . . . 60′, or lengths corresponding to arcs less than one degree. The unit of length is the English foot. The derivation of this table is explained in section (3).

The length corresponding to any latitude interval is the distance along the meridian between parallels whose latitudes are less and greater respectively than the given latitude by half the interval. Thus, for example, the length corresponding to the interval 30′ and latitude 37° (182047.3 feet) is the distance along the meridian from latitude 36° 45′ to latitude 37° 15′.

By interpolation, we may get from this table the meridional distance corresponding to any interval falling between latitude 25° and latitude 50°. The following example will illustrate this use: Required the length of the meridional arc between latitude 41° 28′ 17″.8 and latitude 41° 39′ 53″.4. The difference of these latitudes is 11′ 35″.6 and their mean is 41° 34′ 05″.6. The computation runs thus:

	Latitude 41°.	Tabular difference.
10′	60724.60 feet	10.70 feet
1′	6072.46 "	1.07 "
30″	3036.23 "	.54 "
5″	506.04 "	.09 "
0″.6	60.72 "	.01 "
$\frac{34.09}{60} \times 12.41$	7.05 "	Sum, 12.41 feet.

Length = 70407.10 feet.

When the degree of precision required is as great as that in the example just given it will be more convenient to use formula (6). Thus, in this example—

	log.
$\Delta\varphi = 695''.6$	2.8423596
$\varphi = 41° 34' 05''.6$, ρ_m (Table I)	7.3196820
cons't	4.6855749
Length = 70407.10 feet	4.8476165

(10.) Table IV gives lengths of terrestrial arcs of parallels corresponding to longitude intervals of 10″, 20″, . . . 60″ and 10′, 20′, . . . 60′, or

lengths corresponding to arcs less than one degree. Its derivation is explained in section (4). The unit is the English foot.

The method of using this table is similar to that applicable to Table III, explained above. For the precise computation of arcs along parallels intermediate to those of the table, direct application of formula (9) is less laborious than interpolation from the table.

(11.) Tables V to XI give the co-ordinates for the projection of maps according to the polyconic system explained in section (5) for the following scales respectively:

Scale $\frac{1}{250000}$,	Table V.
" $\frac{1}{126720}$,	" VI.
" $\frac{1}{125000}$,	" VII.
" $\frac{1}{63360}$,	" VIII.
" $\frac{1}{62500}$,	" IX.
" $\frac{1}{31680}$,	" X.
" $\frac{1}{30000}$,	" XI.

The unit of length is the English inch.

The use of these tables and their application in the graphical construction of maps may be best explained by an example. Suppose it is required

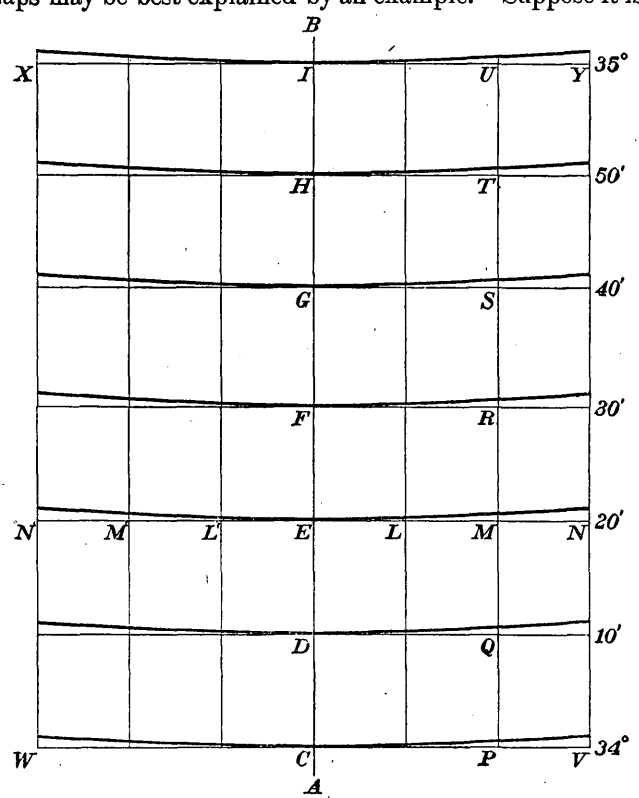

Fig. 4.

to draw meridians and parallels for a map of an area of 1° extent in longitude, lying between the parallels of 34° and 35°. Let the scale of the map be one mile to the inch, or 1 /63360, and let the meridians and parallels be 10′ apart respectively. Draw on the projection paper an indefinite straight line A B, FIG. 4, to represent the middle meridian of the map. Take any convenient point, as C, on this line for the latitude 34°, and lay off from this point the meridional distances C D, C E, C F, . . . C I given in the second column of Table VIII, p. 44.* Through the points D, E, F, ... I thus found, draw indefinite straight lines perpendicular to A B. By means of these lines and the tabular co-ordinates, points on the developed parallels and meridians are readily found. Thus, for example, the abscissas for points ten minutes apart on the parallel 34° 20′ are 9.53, 19.06, and 28.59 inches. These distances are to be laid off on N N′ in both directions from A B. At the points L, M, N, L′, M′, N′, so determined, erect perpendiculars to N N′ equal in length, respectively, to the ordinates corresponding to the longitude intervals 10′, 20′, 30′. The curved line joining the extremities of these perpendiculars is the parallel required. It may be drawn by means of a flexible ruler. The other parallels are constructed in the same manner. They are all concave towards the north or south according as the map shows a portion of the northern or southern hemisphere. The meridians are drawn in a similar manner through the points (*e. g.*, P, Q, M, R, S, T, U in FIG. 4) having the same longitude relative to the middle meridian. All meridians are concave towards the middle meridian.

A test of the graphical work which should always be applied is the approximation to equality of corresponding diagonals in the various quadrilaterals formed. Thus in FIG. 4, V X should be equal to W Y, C N* to C N′, E V to E W, etc.†

(12.) Tables XII to XV give the areas in square miles of quadrilaterals of the earth's surface of 1°, 30′, 15′ and 10′ extent, respectively, in latitude and longitude. Their derivation is explained in section (6). The spheroid adopted in the computation of these tables is Clarke's (1866). See section (1). The arguments of the tables are the middle latitudes of the quadrilaterals. From the tabular values, by means of interpolation and summation, the area of any portion of the earth's surface bounded by meridians and parallels may be found.

(13.) Table XVI shows the actual intervals or distances in feet corresponding to 0.01 inch on maps of different scales. It is derived in the following manner:

*The meridional distances and the abscissas of the points on the developed parallels in *Fig.* 4 are one-twentieth of the true or tabular values. The ordinates of points on the developed parallels are the tabular values.

† It should be noted that C N is not equal to E V, N and V referring here to points on the developed parallels.

Let I be the actual linear interval corresponding to the interval i on a map whose scale is s. Then

$$I = \frac{i}{s}.$$

If in this we make $i = 0.01$ inch and express I in feet, there results

$$I \text{ in feet} = \frac{0.01 \text{ inch}}{12\ s}.$$

Making s successively 1 / 250000, 1 / 126720, etc., the values in the table are found.

(330)

TABLE I.—*Logarithms of meridian radius of curvature* ρ_m *in English feet.*

[Derivation of table explained in section (2); use of table explained on p. 20.]

Lat.	21°	22°	23°	24°	25°	26°	27°	28°	29°	30°	P. P.
′	7.318	7.318	7.318	7.318	7.318	7.318	7.318	7.318	7.318	7.318	
0	3045	3570	4115	4678	5259	5858	6474	7105	7751	8412	
1	3053	3579	4124	4688	5269	5868	6484	7116	7762	8423	
2	3062	3588	4133	4697	5279	5878	6494	7126	7773	8434	
3	3070	3597	4142	4707	5289	5889	6505	7137	7784	8445	
4	3079	3606	4152	4716	5299	5899	6515	7148	7795	8457	
5	3088	3614	4161	4726	5309	5909	6526	7158	7806	8468	
6	3096	3623	4170	4735	5319	5919	6536	7169	7817	8479	8
7	3105	3632	4179	4745	5328	5929	6546	7180	7828	8490	
8	3113	3641	4189	4754	5338	5939	6557	7190	7839	8501	
9	3122	3650	4198	4764	5348	5949	6567	7201	7850	8512	10 1.3
10	3131	3659	4207	4774	5358	5960	6578	7212	7860	8523	20 2.6 30 4.0 40 5.3 50 6.7 60 8.0
11	3139	3668	4216	4783	5368	5970	6588	7222	7871	8535	
12	3148	3677	4226	4793	5378	5980	6599	7233	7882	8546	
13	3157	3686	4235	4802	5388	5990	6609	7244	7893	8557	
14	3165	3695	4244	4812	5398	6000	6620	7254	7904	8568	
15	3174	3704	4254	4822	5408	6011	6630	7265	7915	8579	
16	3183	3713	4263	4831	5417	6021	6640	7276	7926	8591	9
17	3191	3722	4272	4841	5427	6031	6651	7287	7937	8602	
18	3200	3731	4282	4851	5437	6041	6661	7297	7948	8613	
19	3209	3740	4291	4860	5447	6051	6672	7308	7959	8624	10 1.5
20	3217	3749	4300	4870	5457	6062	6682	7319	7970	8635	20 3.0 30 4.5 40 6.0 50 7.5 60 9.0
21	3226	3758	4310	4879	5467	6072	6693	7329	7981	8647	
22	3235	3767	4319	4889	5477	6082	6703	7340	7992	8658	
23	3244	3776	4328	4899	5487	6092	6714	7351	8003	8669	
24	3252	3785	4338	4908	5497	6102	6724	7362	8014	8680	
25	3261	3794	4347	4918	5507	6113	6735	7372	8025	8691	
26	3270	3804	4356	4928	5517	6123	6745	7383	8036	8703	10
27	3278	3813	4366	4937	5527	6133	6756	7394	8047	8714	
28	3287	3822	4375	4947	5537	6143	6766	7405	8058	8725	
29	3296	3831	4384	4957	5547	6154	6777	7416	8069	8736	10 1.7
30	3305	3840	4394	4966	5557	6164	6787	7426	8080	8747	20 3.3 30 5.0 40 6.7 50 8.3 60 10.0
31	3313	3849	4403	4976	5567	6174	6798	7437	8091	8759	
32	3322	3858	4413	4986	5577	6185	6808	7448	8102	8770	
33	3331	3867	4422	4996	5587	6195	6819	7459	8113	8781	
34	3340	3876	4431	5005	5597	6205	6829	7469	8124	8792	
35	3349	3885	4441	5015	5607	6215	6840	7480	8135	8804	
36	3357	3894	4450	5025	5617	6226	6851	7491	8146	8815	11
37	3366	3904	4460	5034	5627	6236	6861	7502	8157	8826	
38	3375	3913	4469	5044	5637	6246	6872	7513	8168	8838	
39	3384	3922	4479	5054	5647	6256	6882	7523	8179	8849	10 1.8
40	3393	3931	4488	5064	5657	6267	6893	7534	8190	8860	20 3.7 30 5.5 40 7.3 50 9.2 60 11.0
41	3401	3940	4498	5073	5667	6277	6903	7545	8201	8871	
42	3410	3949	4507	5083	5677	6287	6914	7556	8212	8883	
43	3419	3958	4516	5093	5687	6298	6924	7567	8223	8894	
44	3428	3967	4526	5103	5697	6308	6935	7578	8234	8905	
45	3437	3977	4535	5112	5707	6318	6946	7588	8246	8916	
46	3446	3986	4545	5122	5717	6329	6956	7599	8257	8928	12
47	3454	3995	4554	5132	5727	6339	6967	7610	8268	8939	
48	3463	4004	4564	5142	5737	6349	6977	7621	8279	8950	
49	3472	4013	4573	5151	5747	6360	6988	7632	8280	8962	10 2.0
50	3481	4022	4583	5161	5757	6370	6999	7643	8301	8973	20 4.0 30 6.0 40 8.0 50 10.0 60 12.0
51	3490	4032	4592	5171	5767	6380	7009	7653	8312	8984	
52	3499	4041	4602	5181	5777	6391	7020	7664	8323	8996	
53	3508	4050	4611	5191	5787	6401	7030	7675	8334	9007	
54	3516	4059	4621	5200	5798	6411	7041	7686	8345	9018	
55	3525	4068	4630	5210	5808	6422	7052	7697	8356	9030	
56	3534	4078	4640	5220	5818	6432	7062	7708	8368	9041	
57	3543	4086	4649	5230	5828	6442	7073	7719	8379	9052	
58	3552	4096	4659	5240	5838	6453	7084	7729	8390	9064	
59	3561	4105	4668	5250	5848	6463	7094	7740	8401	9075	
60	3570	4115	4678	5259	5858	6474	7105	7751	8412	9086	

TABLE I.—*Logarithms of meridian radius of curvature ρ_m in English feet.*

[Derivation of table explained in section (2); use of table explained on page 20.]

Lat.	31°	32°	33°	34°	35°	36°	37°	38°	39°	40°	P. P.	
′	**7.318**	**7.318**	**7.319**	**7.319**	**7.319**	**7.319**	**7.319**	**7.319**	**7.319**	**7.319**		
0	9086	9773	0472	1182	1902	2631	3369	4114	4866	5623		
1	9098	9785	0484	1194	1914	2643	3381	4126	4878	5636		
2	9109	9796	0495	1206	1926	2656	3394	4139	4891	5649		
3	9120	9807	0507	1218	1938	2668	3406	4151	4904	5661	**11**	
4	9132	9819	0519	1230	1950	2680	3418	4164	4916	5674		
5	9143	9831	0531	1241	1962	2692	3431	4176	4929	5687		
6	9154	9843	0542	1253	1974	2705	3443	4189	4941	5699	10	1.8
7	9166	9854	0554	1265	1986	2717	3455	4201	4954	5712	20	3.7
8	9177	9866	0566	1277	1999	2729	3468	4214	4966	5725	30	5.5
9	9189	9877	0577	1289	2011	2741	3480	4226	4979	5737	40	7.3
10	9200	9889	0590	1301	2023	2753	3492	4239	4992	5750	50	9.2
											60	11.0
11	9211	9900	0601	1313	2035	2766	3505	4251	5004	5763		
12	9223	9912	0613	1325	2047	2778	3517	4264	5017	5775		
13	9234	9924	0625	1337	2059	2790	3530	4276	5029	5788		
14	9245	9935	0637	1349	2071	2803	3542	4289	5042	5801		
15	9257	9947	0648	1361	2083	2815	3554	4301	5055	5813		
16	9268	9958	0660	1373	2095	2827	3567	4314	5067	5826		
17	9280	9970	0672	1385	2108	2839	3579	4326	5080	5839		
18	9291	9982	0684	1397	2120	2852	3592	4339	5092	5851		
19	9302	9993	0696	1409	2132	2864	3604	4351	5105	5864		
20	9314	*0005	0707	1421	2144	2876	3616	4364	5118	5877		
21	9325	*0016	0719	1433	2156	2888	3629	4376	5130	5890		
22	9337	*0028	0731	1445	2168	2901	3641	4389	5143	5902		
23	9348	*0040	0743	1457	2180	2913	3654	4401	5156	5915	**12**	
24	9360	*0051	0755	1469	2192	2925	3666	4414	5168	5928		
25	9371	*0063	0766	1481	2205	2938	3678	4426	5181	5940		
26	9382	*0075	0778	1493	2217	2950	3691	4439	5193	5953	10	2.0
27	9393	*0086	0790	1505	2229	2962	3703	4451	5206	5966	20	4.0
28	9405	*0098	0802	1517	2241	2974	3716	4464	5219	5978	30	6.0
29	9417	*0110	0814	1529	2253	2987	3728	4477	5231	5991	40	8.0
											50	10.0
30	9428	*0121	0826	1541	2265	2999	3741	4489	5244	6004	60	12.0
31	9440	*0133	0837	1553	2278	3011	3753	4502	5256	6017		
32	9451	*0144	0849	1565	2290	3024	3765	4514	5269	6029		
33	9463	*0156	0861	1577	2302	3036	3778	4527	5282	6042		
34	9474	*0168	0873	1589	2314	3048	3790	4539	5294	6055		
35	9485	*0179	0885	1601	2326	3060	3803	4552	5307	6067		
36	9497	*0191	0897	1613	2338	3073	3815	4564	5320	6080		
37	9508	*0203	0908	1625	2351	3085	3828	4577	5332	6093		
38	9520	*0214	0920	1637	2363	3097	3840	4589	5345	6106		
39	9531	*0226	0932	1649	2375	3110	3852	4602	5358	6118		
40	9543	*0238	0944	1661	2387	3122	3865	4614	5370	6131		
41	9554	*0249	0956	1673	2399	3134	3877	4627	5383	6144		
42	9566	*0261	0968	1685	2411	3147	3890	4640	5395	6156		
43	9577	*0273	0980	1697	2424	3159	3902	4652	5408	6169	**13**	
44	9589	*0285	0992	1709	2436	3171	3915	4665	5421	6182		
45	9600	*0296	1003	1721	2448	3184	3927	4677	5433	6195		
46	9612	*0308	1015	1733	2460	3196	3939	4690	5446	6207	10	2.2
47	9623	*0320	1027	1745	2472	3208	3952	4702	5459	6220	20	4.3
48	9635	*0331	1039	1757	2485	3221	3964	4715	5471	6233	30	6.5
49	9646	*0343	1051	1769	2497	3233	3977	4727	5484	6245	40	8.7
											50	10.8
50	9658	*0355	1063	1781	2509	3245	3989	4740	5497	6258	60	13.0
51	9669	*0366	1075	1793	2521	3258	4002	4753	5509	6271		
52	9681	*0378	1087	1805	2533	3270	4014	4765	5522	6284		
53	9692	*0390	1098	1817	2546	3282	4027	4778	5535	6296		
54	9704	*0402	1110	1829	2558	3295	4039	4790	5547	6309		
55	9715	*0413	1122	1841	2570	3307	4052	4803	5560	6322		
56	9727	*0425	1134	1854	2582	3319	4064	4815	5573	6335		
57	9739	*0437	1146	1866	2594	3332	4077	4828	5585	6347		
58	9750	*0449	1158	1878	2607	3344	4089	4841	5598	6360		
59	9762	*0460	1170	1890	2619	3356	4101	4853	5611	6373		
60	9773	*0472	1182	1902	2631	3369	4114	4866	5623	6385		

TABLE I.—*Logarithms of meridian radius of curvature ρ_m in English feet.*

[Derivation of table explained in section (2); use of table explained on page 20.]

Lat.	41°	42°	43°	44°	45°	46°	47°	48°	49°	50°	P. P.
′	7.319	7.319	7.319	7.319	7.319	7.320	7.320	7.320	7.320	7.320	
0	6385	7152	7921	8692	9464	0236	1007	1776	2543	3306	
′											
1	6398	7164	7933	8704	9476	0248	1020	1789	2556	3319	
2	6411	7177	7946	8717	9489	0261	1033	1802	2569	3331	
3	6424	7190	7959	8730	9502	0274	1045	1815	2581	3344	
4	6436	7203	7972	8743	9515	0287	1058	1827	2594	3357	
5	6449	7216	7985	8756	9528	0300	1071	1840	2607	3369	
6	6462	7228	7998	8769	9541	0313	1084	1853	2619	3382	
7	6475	7241	8010	8782	9554	0326	1097	1866	2632	3395	
8	6487	7254	8023	8794	9566	0338	1110	1879	2645	3407	
9	6500	7267	8036	8807	9579	0351	1122	1892	2658	3420	
10	6513	7280	8049	8820	9592	0364	1135	1904	2670	3433	
11	6526	7292	8062	8833	9605	0377	1148	1917	2683	3445	12
12	6538	7305	8075	8846	9618	0390	1161	1930	2696	3458	
13	6551	7318	8087	8859	9631	0403	1174	1943	2709	3471	10 2.0
14	6564	7331	8100	8872	9644	0416	1187	1955	2721	3483	20 4.0
15	6577	7344	8113	8884	9657	0429	1199	1968	2734	3496	30 6.0
16	6589	7356	8126	8897	9669	0441	1212	1981	2747	3509	40 8.0
17	6602	7369	8139	8910	9682	0454	1225	1994	2760	3521	50 10.0
18	6615	7382	8152	8923	9695	0467	1238	2007	2772	3534	60 12.0
19	6628	7395	8165	8936	9708	0480	1251	2019	2785	3547	
20	6640	7408	8177	8949	9721	0493	1264	2032	2798	3559	
21	6653	7420	8190	8962	9734	0506	1276	2045	2811	3572	
22	6666	7433	8203	8975	9747	0519	1289	2058	2823	3585	
23	6679	7446	8216	8987	9760	0531	1302	2071	2836	3597	
24	6692	7459	8229	9000	9772	0544	1315	2083	2849	3610	
25	6704	7472	8242	9013	9785	0557	1328	2096	2861	3623	
26	6717	7485	8254	9026	9798	0570	1341	2109	2874	3635	
27	6730	7497	8267	9039	9811	0583	1353	2122	2887	3648	
28	6743	7510	8280	9052	9824	0596	1366	2134	2900	3661	
29	6755	7523	8293	9065	9837	0609	1379	2147	2912	3673	
30	6768	7536	8306	9077	9850	0621	1392	2160	2925	3686	
31	6781	7549	8319	9090	9862	0634	1405	2173	2938	3699	13
32	6794	7561	8332	9103	9875	0647	1418	2186	2950	3711	
33	6806	7574	8344	9116	9888	0660	1430	2198	2963	3724	10 2.2
34	6819	7587	8357	9129	9901	0673	1443	2211	2976	3736	20 4.3
35	6832	7600	8370	9142	9914	0686	1456	2224	2989	3749	30 6.5
36	6844	7613	8383	9155	9927	0699	1469	2237	3001	3762	40 8.7
37	6858	7626	8396	9168	9940	0711	1482	2249	3014	3774	50 10.8
38	6870	7638	8409	9180	9953	0724	1494	2262	3027	3787	60 13.0
39	6883	7651	8422	9193	9965	0737	1507	2275	3039	3800	
40	6896	7664	8434	9206	9978	0750	1520	2288	3052	3812	
41	6909	7677	8447	9219	9991	0763	1533	2301	3065	3825	
42	6921	7690	8460	9232	*0004	0776	1546	2313	3078	3838	
43	6934	7702	8473	9245	*0017	0788	1559	2326	3090	3850	
44	6947	7715	8486	9258	*0030	0801	1571	2339	3103	3863	
45	6960	7728	8499	9270	*0043	0814	1584	2352	3116	3875	
46	6973	7741	8512	9283	*0055	0827	1597	2364	3128	3888	
47	6985	7754	8524	9296	*0068	0840	1610	2377	3141	3901	
48	6998	7767	8537	9309	*0081	0853	1623	2390	3154	3913	
49	7011	7779	8550	9322	*0094	0866	1635	2403	3166	3926	
50	7024	7792	8563	9335	*0107	0878	1648	2415	3179	3938	
51	7036	7805	8576	9348	*0120	0891	1661	2428	3192	3951	
52	7049	7818	8589	9361	*0133	0904	1674	2441	3205	3964	
53	7062	7831	8602	9373	*0146	0917	1687	2454	3217	3976	
54	7075	7844	8614	9386	*0158	0930	1699	2466	3230	3989	
55	7088	7856	8627	9399	*0171	0943	1712	2479	3243	4002	
56	7100	7869	8640	9412	*0184	0955	1725	2492	3255	4014	
57	7113	7882	8653	9425	*0197	0968	1738	2505	3268	4027	
58	7126	7895	8666	9438	*0210	0981	1751	2517	3281	4039	
59	7139	7908	8679	9451	*0223	0994	1763	2530	3293	4052	
60	7152	7921	8692	9464	*0236	1007	1776	2543	3306	4065	

TABLE II.—*Logarithms of radius of curvature of normal section ρ_n in English feet.*

[Derivation of table explained in section (2); use of table explained on page 21.]

Lat.	21°	22°	23°	24°	25°	26°	27°	28°	29°	30°	P. P.	
′	7.320	7.320	7.320	7.320	7.320	7.320	7.320	7.321	7.321	7.321		
0	8763	8939	9120	9308	9502	9701	9907	0117	0332	0553		
1	8766	8942	9123	9311	9505	9705	9910	0121	0336	0556	2	
2	8769	8945	9126	9314	9508	9708	9913	0124	0340	0560		
3	8772	8948	9129	9318	9512	9712	9917	0128	0343	0564	10	.3
4	8775	8951	9132	9321	9515	9715	9920	0131	0347	0567	20	.7
5	8778	8953	9136	9324	9518	9718	9924	0135	0351	0571	30	1.0
6	8780	8956	9139	9327	9521	9722	9927	0138	0354	0575	40	1.3
7	8784	8959	9142	9330	9525	9725	9931	0142	0358	0579	50	1.7
8	8786	8962	9145	9333	9528	9728	9934	0145	0361	0582	60	2.0
9	8789	8965	9148	9337	9531	9732	9938	0149	0365	0586		
10	8792	8968	9151	9340	9535	9735	9941	0153	0369	0590		
11	8795	8971	9154	9343	9538	9739	9945	0156	0372	0594		
12	8798	8974	9157	9346	9541	9742	9948	0159	0376	0597		
13	8800	8977	9160	9349	9545	9745	9952	0163	0380	0601		
14	8804	8980	9163	9353	9548	9749	9955	0167	0383	0605		
15	8807	8983	9167	9356	9551	9752	9959	0170	0387	0608		
16	8810	8986	9170	9359	9554	9756	9962	0174	0391	0612		
17	8812	8989	9173	9362	9558	9759	9966	0177	0394	0616		
18	8815	8992	9176	9365	9561	9762	9969	0181	0398	0620		
19	8818	8995	9179	9368	9564	9766	9973	0185	0402	0623		
20	8821	8998	9182	9372	9568	9769	9976	0188	0405	0627	3	
21	8824	9001	9185	9375	9571	9773	9980	0192	0409	0631		
22	8827	9004	9188	9378	9574	9776	9983	0195	0413	0635		
23	8830	9007	9191	9381	9578	9779	9987	0199	0416	0638	10	.5
24	8833	9010	9195	9384	9581	9783	9990	0203	0420	0642	20	1.0
25	8836	9013	9198	9388	9584	9786	9994	0206	0424	0646	30	1.5
26	8839	9016	9201	9391	9588	9790	9997	0210	0427	0649	40	2.0
27	8841	9020	9204	9394	9591	9793	*0001	0213	0431	0653	50	2.5
28	8844	9023	9207	9398	9594	9796	*0004	0217	0435	0657	60	3.0
29	8847	9026	9210	9401	9598	9800	*0008	0220	0438	0661		
30	8850	9029	9213	9404	9601	9803	*0011	0224	0442	0664		
31	8853	9032	9216	9407	9604	9807	*0015	0228	0446	0668		
32	8856	9035	9220	9411	9608	9810	*0018	0231	0449	0672		
33	8859	9038	9223	9414	9611	9814	*0022	0235	0453	0676		
34	8862	9041	9226	9417	9614	9817	*0025	0238	0457	0679		
35	8865	9044	9229	9420	9618	9820	*0029	0242	0460	0683		
36	8868	9047	9232	9424	9621	9824	*0032	0246	0464	0687		
37	8871	9050	9235	9427	9624	9827	*0036	0249	0468	0691		
38	8874	9053	9238	9430	9628	9831	*0039	0253	0471	0694		
39	8877	9056	9242	9433	9631	9834	*0043	0256	0475	0698		
40	8879	9059	9245	9437	9634	9838	*0046	0260	0479	0702	4	
41	8882	9062	9248	9440	9638	9841	*0050	0264	0482	0706		
42	8885	9065	9251	9443	9641	9844	*0053	0267	0486	0710		
43	8888	9068	9254	9446	9644	9848	*0057	0271	0490	0713	10	.7
44	8891	9071	9257	9450	9648	9851	*0060	0274	0493	0717	20	1.3
45	8894	9074	9260	9453	9651	9855	*0064	0278	0497	0721	30	2.0
46	8897	9077	9264	9456	9654	9858	*0067	0282	0501	0725	40	2.7
47	8900	9080	9267	9459	9658	9862	*0071	0285	0505	0728	50	3.3
48	8903	9083	9270	9463	9661	9865	*0074	0289	0508	0732	60	4.0
49	8906	9086	9273	9466	9664	9869	*0078	0293	0512	0736		
50	8909	9089	9276	9469	9668	9872	*0082	0296	0516	0740		
51	8912	9093	9279	9472	9671	9875	*0085	0300	0519	0743		
52	8915	9096	9283	9476	9674	9879	*0089	0303	0523	0747		
53	8918	9099	9286	9479	9678	9882	*0092	0307	0527	0751		
54	8921	9102	9289	9482	9681	9886	*0096	0311	0530	0755		
55	8924	9105	9292	9485	9685	9889	*0099	0314	0534	0759		
56	8927	9108	9295	9489	9688	9893	*0103	0318	0538	0762		
57	8930	9111	9298	9492	9691	9896	*0106	0322	0542	0766		
58	8933	9114	9302	9495	9695	9900	*0110	0325	0545	0770		
59	8936	9117	9305	9498	9698	9903	*0113	0329	0549	0774		
60	8939	9120	9308	9502	9701	9907	*0117	0332	0553	0777		

TABLE II.—*Logarithms of radius of curvature of normal section ρ_n in English feet.*

[Derivation of table explained in section (2); use of table explained on page 21.]

Lat.	31°	32°	33°	34°	35°	36°	37°	38°	39°	40°	P. P.
′	7.321	7.321	7.321	7.321	7.321	7.321	7.321	7.321	7.321	7.321	
0	0777	1006	1239	1476	1716	1959	2205	2453	2704	2956	
1	0781	1010	1243	1480	1720	1963	2209	2457	2708	2961	
2	0785	1014	1247	1484	1724	1967	2213	2462	2712	2965	
3	0789	1018	1251	1488	1728	1971	2217	2466	2716	2969	3
4	0793	1022	1255	1492	1732	1975	2221	2470	2721	2973	
5	0796	1026	1259	1496	1736	1979	2226	2474	2725	2978	
6	0800	1029	1263	1500	1740	1983	2230	2478	2729	2982	10 .5
7	0804	1033	1267	1504	1744	1988	2234	2482	2733	2986	20 1.0
8	0808	1037	1271	1508	1748	1992	2238	2487	2737	2990	30 1.5
9	0811	1041	1275	1512	1752	1996	2242	2491	2742	2994	40 2.0
10	0815	1045	1279	1516	1756	2000	2246	2495	2746	2999	50 2.5
											60 3.0
11	0819	1049	1282	1520	1760	2004	2250	2499	2750	3003	
12	0823	1053	1286	1524	1764	2008	2254	2503	2754	3007	
13	0827	1057	1290	1528	1768	2012	2259	2507	2758	3011	
14	0830	1060	1294	1532	1772	2816	2263	2512	2763	3016	
15	0834	1064	1298	1536	1776	2020	2267	2516	2767	3020	
16	0838	1068	1302	1540	1780	2024	2271	2520	2771	3024	
17	0842	1072	1306	1544	1784	2028	2275	2524	2775	3028	
18	0846	1076	1310	1548	1789	2033	2279	2528	2779	3032	
19	0849	1080	1314	1552	1793	2037	2283	2532	2784	3037	
20	0853	1084	1318	1556	1797	2041	2287	2537	2788	3041	
21	0857	1087	1322	1560	1801	2045	2292	2541	2792	3045	
22	0861	1091	1326	1564	1805	2049	2296	2545	2796	3049	
23	0865	1095	1330	1568	1809	2053	2300	2549	2800	3054	4
24	0869	1099	1334	1572	1813	2057	2304	2553	2805	3058	
25	0872	1103	1337	1576	1817	2061	2308	2557	2809	3062	
26	0876	1107	1341	1580	1821	2065	2312	2562	2813	3066	10 .7
27	0880	1111	1345	1584	1825	2069	2316	2566	2817	3071	20 1.3
28	0884	1115	1349	1588	1829	2073	2321	2570	2822	3075	30 2.0
29	0888	1118	1353	1592	1833	2077	2325	2574	2826	3079	40 2.7
											50 3.3
30	0891	1122	1357	1596	1837	2082	2329	2578	2830	3083	60 4.0
31	0895	1126	1361	1600	1841	2086	2333	2583	2834	3087	
32	0899	1130	1365	1604	1845	2090	2337	2587	2838	3092	
33	0903	1134	1369	1608	1849	2094	2341	2591	2843	3096	
34	0907	1138	1373	1612	1853	2098	2345	2595	2847	3100	
35	0910	1142	1377	1616	1857	2102	2350	2599	2851	3104	
36	0914	1146	1381	1620	1861	2106	2354	2603	2855	3109	
37	0918	1150	1385	1624	1865	2110	2358	2608	2859	3113	
38	0922	1153	1389	1628	1870	2114	2362	2612	2864	3117	
39	0926	1157	1393	1632	1874	2119	2366	2616	2868	3121	
40	0930	1161	1397	1636	1878	2123	2370	2620	2872	3126	
41	0933	1165	1401	1640	1882	2127	2374	2624	2876	3130	
42	0937	1169	1405	1644	1886	2131	2379	2629	2880	3134	
43	0941	1173	1409	1648	1890	2135	2383	2633	2885	3138	5
44	0945	1177	1412	1652	1894	2139	2387	2637	2889	3143	
45	0949	1181	1416	1656	1898	2143	2391	2641	2893	3147	
46	0953	1185	1420	1660	1902	2147	2395	2645	2897	3151	10 .8
47	0956	1189	1424	1664	1906	2151	2399	2649	2902	3155	20 1.7
48	0960	1192	1428	1668	1910	2156	2403	2654	2906	3160	30 2.5
49	0964	1196	1432	1672	1914	2160	2408	2658	2910	3164	40 3.3
											50 4.2
50	0968	1200	1436	1676	1918	2164	2412	2662	2914	3168	60 5.0
51	0972	1204	1440	1680	1922	2168	2416	2666	2918	3172	
52	0976	1208	1444	1684	1926	2172	2420	2670	2923	3177	
53	0979	1212	1448	1688	1931	2176	2424	2675	2927	3181	
54	0983	1216	1452	1692	1935	2180	2428	2679	2931	3185	
55	0987	1220	1456	1696	1939	2184	2433	2683	2935	3189	
56	0991	1224	1460	1700	1943	2188	2437	2687	2940	3193	
57	0995	1228	1464	1704	1947	2193	2441	2691	2944	3198	
58	0999	1231	1468	1708	1951	2197	2445	2696	2948	3202	
59	1003	1235	1472	1712	1955	2201	2449	2700	2952	3206	
60	1006	1239	1476	1716	1959	2205	2453	2704	2956	3210	

TABLE II.—*Logarithms of radius of curvature of normal section ρ_n in English feet.*

[Derivation of table explained in section (2); use of table explained on page 21.]

Lat.	41°	42°	43°	44°	45°	46°	47°	48°	49°	50°	P. P.
′	7.321	7.321	7.321	7.321	7.321	7.321	7.321	7.321	7.321	7.321	
0	3210	3466	3722	3979	4236	4494	4751	5007	5263	5517	
1	3215	3470	3726	3983	4241	4498	4755	5012	5267	5522	
2	3219	3474	3731	3988	4245	4502	4760	5016	5271	5526	
3	3223	3479	3735	3992	4249	4507	4764	5020	5276	5530	
4	3227	3483	3739	3996	4254	4511	4768	5024	5280	5534	
5	3232	3487	3744	4001	4258	4515	4772	5029	5284	5538	
6	3236	3491	3748	4005	4262	4520	4777	5033	5288	5543	
7	3240	3496	3752	4009	4267	4524	4781	5037	5293	5547	
8	3244	3500	3756	4013	4271	4528	4785	5042	5297	5551	
9	3249	3504	3761	4018	4275	4532	4789	5046	5301	5555	
10	3253	3508	3765	4022	4279	4537	4794	5050	5305	5560	4
11	3257	3513	3769	4026	4284	4541	4798	5054	5310	5564	
12	3261	3517	3774	4031	4288	4545	4802	5059	5314	5568	
13	3266	3521	3778	4035	4292	4550	4807	5063	5318	5572	10 .7
14	3270	3526	3782	4039	4297	4554	4811	5067	5322	5576	20 1.3
15	3274	3530	3786	4043	4301	4558	4815	5071	5327	5581	30 2.0
16	3278	3534	3791	4048	4305	4562	4819	5076	5331	5585	40 2.7
17	3283	3538	3795	4052	4309	4567	4824	5080	5335	5589	50 3.3
18	3287	3543	3799	4056	4314	4571	4828	5084	5339	5593	60 4.0
19	3291	3547	3803	4061	4318	4575	4832	5088	5344	5598	
20	3295	3551	3808	4065	4322	4580	4837	5093	5348	5602	
21	3300	3555	3812	4069	4327	4584	4841	5097	5352	5606	
22	3304	3560	3816	4073	4331	4588	4845	5101	5356	5610	
23	3308	3564	3821	4078	4335	4592	4849	5105	5361	5614	
24	3312	3568	3825	4082	4339	4597	4854	5110	5365	5619	
25	3317	3573	3829	4086	4344	4601	4858	5114	5369	5623	
26	3321	3577	3833	4091	4348	4605	4862	5118	5373	5627	
27	3325	3581	3838	4095	4352	4610	4866	5123	5378	5631	
28	3329	3585	3842	4099	4357	4614	4871	5127	5382	5636	
29	3334	3590	3846	4104	4361	4618	4875	5131	5386	5640	
30	3338	3594	3851	4108	4365	4622	4879	5135	5390	5644	5
31	3342	3598	3855	4112	4369	4627	4884	5140	5395	5648	
32	3347	3602	3859	4116	4374	4631	4888	5144	5399	5652	
33	3351	3607	3863	4121	4378	4635	4892	5148	5403	5657	10 .8
34	3355	3611	3868	4125	4382	4640	4896	5152	5407	5661	20 1.7
35	3359	3615	3872	4129	4387	4644	4901	5157	5412	5665	30 2.5
36	3364	3620	3876	4134	4391	4648	4905	5161	5416	5669	40 3.3
37	3368	3624	3881	4138	4395	4652	4909	5165	5420	5673	50 4.2
38	3372	3628	3885	4142	4399	4657	4913	5169	5424	5678	60 5.0
39	3376	3632	3889	4146	4404	4661	4918	5174	5428	5682	
40	3381	3637	3893	4151	4408	4665	4922	5178	5433	5686	
41	3385	3641	3898	4155	4412	4670	4926	5182	5437	5690	
42	3389	3645	3902	4159	4417	4674	4931	5186	5441	5694	
43	3393	3649	3906	4164	4421	4678	4935	5191	5445	5699	
44	3398	3654	3911	4168	4425	4682	4939	5195	5450	5703	
45	3402	3658	3915	4172	4430	4687	4943	5199	5454	5707	
46	3406	3662	3919	4176	4434	4691	4948	5203	5458	5711	
47	3410	3667	3923	4181	4438	4695	4952	5208	5462	5716	
48	3415	3671	3928	4185	4442	4700	4956	5212	5467	5720	
49	3419	3675	3932	4189	4447	4704	4960	5216	5471	5724	
50	3423	3679	3936	4194	4451	4708	4965	5220	5475	5728	
51	3427	3684	3941	4198	4455	4713	4969	5225	5479	5732	
52	3432	3688	3945	4202	4460	4717	4973	5229	5484	5737	
53	3436	3692	3949	4206	4464	4721	4978	5233	5488	5741	
54	3440	3697	3953	4211	4468	4725	4982	5237	5492	5745	
55	3445	3701	3958	4215	4472	4730	4986	5242	5496	5749	
56	3449	3705	3962	4219	4477	4734	4990	5246	5500	5753	
57	3453	3709	3966	4224	4481	4738	4995	5250	5505	5758	
58	3457	3714	3971	4228	4485	4742	4999	5254	5509	5762	
59	3462	3718	3975	4232	4490	4747	5003	5259	5513	5766	
60	3466	3722	3979	4236	4494	4751	5007	5263	5517	5770	

TABLE III.—*Lengths of Terrestrial Arcs of Meridian.*

[Derivation of table explained in section (3); use of table explained on page 21.]

Latitude Interval.	Latitude 25°	Latitude 26°	Latitude 27°	Latitude 28°	Latitude 29°
"	*Feet.*	*Feet.*	*Feet.*	*Feet.*	*Feet.*
10	1009.49	1009.63	1009.77	1009.92	1010.07
20	2018.97	2019.25	2019.54	2019.83	2020.13
30	3028.46	3028.88	3029.31	3029.75	3030.20
40	4037.95	4038.51	4039.08	4039.67	4040.27
50	5047.44	5048.13	5048.85	5049.58	5050.33
60	6056.92	6057.76	6058.62	6059.50	6060.40
′					
10	60569.2	60577.6	60586.2	60595.0	60604.0
20	121138.5	121155.2	121172.3	121190.0	121208.0
30	181707.7	181732.7	181758.5	181785.0	181812.0
40	242276.9	242310.3	242344.7	242379.9	242416.0
50	302846.1	302887.9	302930.9	302974.9	303019.9
60	363415.4	363465.5	363517.1	363569.9	363623.9
	30°	31°	32°	33°	34°
"					
10	1010.22	1010.38	1010.54	1010.70	1010.86
20	2020.44	2020.75	2021.07	2021.40	2021.73
30	3030.66	3031.13	3031.61	3032.10	3032.59
40	4040.88	4041.51	4042.15	4042.80	4043.46
50	5051.10	5051.89	5052.68	5053.50	5054.32
60	6061.32	6062.26	6063.22	6064.20	6065.19
′					
10	60613.2	60622.6	60632.2	60642.0	60651.9
20	121226.4	121245.3	121264.4	121283.9	121303.8
30	181839.7	181867.9	181896.6	181925.9	181955.7
40	242452.9	242490.5	242528.8	242567.9	242607.6
50	303066.1	303113.2	303161.1	303209.9	303259.4
60	363679.3	363735.8	363793.3	363851.8	363911.3
	35°	36°	37°	38°	39°
"					
10	1011.03	1011.20	1011.37	1011.55	1011.72
20	2022.06	2022.40	2022.75	2023.09	2023.44
30	3033.10	3033.61	3034.12	3034.64	3035.17
40	4044.13	4044.81	4045.50	4046.19	4046.89
50	5055.16	5056.01	5056.87	5057.74	5058.61
60	6066.19	6067.21	6068.24	6069.29	6070.34
′					
10	60661.9	60672.1	60682.4	60692.9	60703.4
20	121323.9	121344.3	121364.9	121385.7	121406.7
30	181985.8	182016.4	182047.3	182078.6	182110.1
40	242647.8	242688.5	242729.7	242771.4	242813.4
50	303309.7	303360.6	303412.2	303464.3	303516.8
60	363971.7	364032.8	364094.6	364157.1	364220.2
	40°	41°	42°	43°	44°
"					
10	1011.90	1012.08	1012.25	1012.43	1012.61
20	2023.80	2024.15	2024.51	2024.87	2025.23
30	3035.70	3036.23	3036.77	3037.30	3037.84
40	4047.60	4048.31	4049.02	4049.74	4050.46
50	5059.50	5060.38	5061.28	5062.17	5063.07
60	6071.39	6072.46	6073.53	6074.61	6075.69
′					
10	60713.9	60724.6	60735.3	60746.1	60756.9
20	121427.9	121449.2	121470.6	121492.2	121513.7
30	182141.8	182173.8	182206.0	182238.2	182270.6
40	242855.8	242898.4	242941.3	242984.3	243027.4
50	303569.7	303623.0	303676.6	303730.4	303784.3
60	364283.7	364347.6	364411.9	364476.5	364541.2
	45°	46°	47°	48°	49°
"					
10	1012.79	1012.97	1013.15	1013.33	1013.51
20	2025.59	2025.95	2026.31	2026.67	2027.02
30	3038.38	3038.92	3039.46	3040.00	3040.54
40	4051.18	4051.90	4052.62	4053.34	4054.05
50	5063.97	5064.87	5065.77	5066.67	5067.56
60	6076.77	6077.85	6078.93	6080.00	6081.08
′					
10	60767.7	60778.5	60789.3	60800.0	60810.8
20	121535.3	121556.9	121578.5	121600.1	121621.5
30	182303.0	182335.4	182367.8	182400.1	182432.3
40	243070.6	243113.9	243157.0	243200.1	243243.0
50	303838.3	303892.4	303946.3	304000.1	304053.8
60	364606.0	364670.8	364735.5	364800.2	364864.5

TABLE IV.—*Lengths of Terrestrial Arcs of Parallel.*

[Derivation of table explained in section (4); use of table explained on page 21.]

Longitude Interval.	Latitude 25°	Latitude 26°	Latitude 27°	Latitude 28°	Latitude 29°
"	*Feet.*	*Feet.*	*Feet.*	*Feet.*	*Feet.*
10	920.03	912.44	904.58	896.44	888.03
20	1840.05	1824.88	1809.16	1792.88	1776.06
30	2760.08	2737.33	2713.74	2689.32	2664.09
40	3680.11	3649.77	3618.32	3585.76	3552.12
50	4600.14	4562.21	4522.89	4482.20	4440.15
60	5520.17	5474.65	5427.47	5378.64	5328.18
'					
10	55201.7	54746.5	54274.7	53786.4	53281.8
20	110403.3	109493.0	108549.5	107572.9	106563.5
30	165605.0	164239.5	162824.2	161359.3	159845.3
40	220806.6	218986.1	217099.0	215145.7	213127.1
50	276008.3	273732.6	271373.7	268932.2	266408.8
60	331209.9	328479.1	325648.4	322718.6	319690.6
	30°	31°	32°	33°	34°
"					
10	879.35	870.40	861.18	851.71	841.97
20	1758.70	1740.80	1722.37	1703.41	1683.94
30	2638.04	2611.20	2583.55	2555.12	2525.91
40	3517.39	3481.59	3444.74	3406.83	3367.88
50	4396.74	4351.99	4305.92	4258.53	4209.85
60	5276.09	5222.39	5167.10	5110.24	5051.82
'					
10	52760.9	52223.9	51671.0	51102.4	50518.2
20	105521.8	104447.8	103342.1	102204.8	101036.4
30	158282.6	156671.8	155013.1	153307.3	151554.6
40	211043.5	208895.7	206684.2	204409.7	202072.8
50	263804.4	261119.6	258355.2	255512.1	252591.0
60	316565.3	313343.5	310026.3	306614.5	303109.2
	35°	36°	37°	38°	39°
"					
10	831.98	821.73	811.23	800.48	789.49
20	1663.95	1643.46	1622.46	1600.97	1578.98
30	2495.93	2465.19	2433.69	2401.45	2368.48
40	3327.91	3286.91	3244.92	3201.93	3157.97
50	4159.88	4108.64	4056.15	4002.42	3947.46
60	4991.86	4930.37	4867.38	4802.90	4736.95
'					
10	49918.6	49303.7	48673.8	48029.0	47369.5
20	99837.2	98607.4	97347.6	96058.0	94739.1
30	149755.8	147911.2	146021.4	144087.0	142108.6
40	199674.3	197214.9	194695.2	192116.0	189478.2
50	249592.9	246518.6	243369.0	240145.0	236847.7
60	299511.5	295822.3	292042.8	288174.0	284217.2
	40°	41°	42°	43°	44°
"					
10	778.26	766.79	755.08	743.15	730.98
20	1556.52	1533.58	1510.17	1486.29	1461.96
30	2334.78	2300.37	2265.25	2229.44	2192.95
40	3113.04	3067.16	3020.33	2972.59	2923.93
50	3891.30	3833.94	3775.42	3715.73	3654.91
60	4669.56	4600.73	4530.50	4458.88	4385.89
'					
10	46695.6	46007.3	45305.0	44588.8	43858.9
20	93391.2	92014.7	90610.0	89177.6	87717.9
30	140086.7	138022.0	135915.0	133766.4	131576.8
40	186782.3	184029.3	181220.0	178355.2	175435.8
50	233477.9	230036.7	226525.0	222944.0	219294.7
60	280173.5	276044.0	271830.1	267532.8	263153.6
	45°	46°	47°	48°	49°
"					
10	718.59	705.99	693.16	680.12	666.87
20	1437.19	1411.97	1386.32	1360.24	1333.75
30	2155.78	2117.96	2079.48	2040.36	2000.62
40	2874.38	2823.94	2772.64	2720.49	2667.50
50	3592.97	3529.93	3465.80	3400.61	3334.37
60	4311.56	4235.91	4158.96	4080.73	4001.25
'					
10	43115.6	42359.1	41589.6	40807.3	40012.5
20	86231.3	84718.2	83179.2	81614.6	80024.9
30	129346.9	127077.3	124768.7	122421.9	120037.4
40	172462.5	169436.5	166358.3	163229.2	160049.9
50	215578.2	211795.6	207947.9	204036.4	200062.3
60	258693.8	254154.7	249537.5	244843.7	240074.8

TABLE V.—*Co-ordinates for projection of maps. Scale* $\frac{1}{2500000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Meridional distances from even degree parallels.	Co-ordinates of developed parallel for—							
		15′ longitude.		30′ longitude.		45′ longitude.		1° longitude.	
		x	y	x	y	x	y	x	y
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
25 00	----------	3.974	.004	7.949	.015	11.923	.033	15.898	.059
15	4.361	3.966	.004	7.933	.015	11.899	.033	15.865	.059
30	8.722	3.958	.004	7.916	.015	11.874	.033	15.832	.059
45	13.083	3.950	.004	7.900	.015	11.850	.034	15.800	.060
26 00	17.444	3.942	.004	7.883	.015	11.825	.034	15.767	.060
15	4.362	3.933	.004	7.866	.015	11.800	.034	15.733	.061
30	8.723	3.925	.004	7.849	.015	11.774	.034	15.699	.061
45	13.085	3.916	.004	7.833	.015	11.749	.035	15.665	.061
27 00	17.446	3.908	.004	7.816	.015	11.723	.035	15.631	.062
15	4.362	3.899	.004	7.798	.016	11.697	.035	15.596	.062
30	8.724	3.890	.004	7.780	.016	11.671	.035	15.561	.063
45	13.087	3.881	.004	7.763	.016	11.644	.036	15.526	.063
28 00	17.449	3.873	.004	7.745	.016	11.618	.036	15.490	.064
15	4.363	3.863	.004	7.727	.016	11.591	.036	15.454	.064
30	8.726	3.854	.004	7.709	.016	11.563	.036	15.418	.064
45	13.088	3.845	.004	7.691	.016	11.536	.036	15.382	.065
29 00	17.451	3.836	.004	7.673	.016	11.509	.036	15.345	.065
15	4.363	3.827	.004	7.654	.016	11.481	.037	15.308	.065
30	8.727	3.817	.004	7.635	.016	11.453	.037	15.270	.066
45	13.091	3.808	.004	7.616	.016	11.425	.037	15.233	.066
30 00	17.454	3.799	.004	7.598	.017	11.396	.037	15.195	.066
15	4.364	3.789	.004	7.578	.017	11.367	.037	15.156	.067
30	8.728	3.779	.004	7.559	.017	11.338	.038	15.118	.067
45	13.092	3.770	.004	7.540	.017	11.309	.038	15.079	.067
31 00	17.457	3.760	.004	7.520	.017	11.280	.038	15.040	.068
15	4.365	3.750	.004	7.500	.017	11.250	.038	15.001	.068
30	8.730	3.740	.004	7.480	.017	11.221	.038	14.961	.068
45	13.095	3.730	.004	7.460	.017	11.191	.038	14.921	.068
32 00	17.460	3.720	.004	7.441	.017	11.161	.039	14.881	.069
15	4.366	3.710	.004	7.420	.017	11.130	.039	14.840	.069
30	8.731	3.700	.004	7.400	.017	11.100	.039	14.799	.069
45	13.097	3.690	.004	7.379	.017	11.069	.039	14.758	.070
33 00	17.462	3.679	.004	7.359	.017	11.038	.039	14.718	.070
15	4.366	3.669	.004	7.338	.018	11.007	.039	14.676	.070
30	8.733	3.658	.004	7.317	.018	10.975	.040	14.633	.070
45	13.099	3.648	.004	7.296	.018	10.943	.040	14.591	.071
34 00	17.465	3.637	.004	7.275	.018	10.912	.040	14.549	.071
15	4.367	3.626	.004	7.253	.018	10.879	.040	14.506	.071
30	8.734	3.616	.004	7.231	.018	10.847	.040	14.463	.071
45	13.101	3.605	.004	7.210	.018	10.815	.040	14.420	.072
35 00	17.468	3.594	.004	7.188	.018	10.782	.040	14.376	.072

TABLE V.—*Co-ordinates for projection of maps. Scale* $\frac{1}{250000}$.

[Derivation of table explained in section (5); use of table explained on p. 22.]

Latitude of parallel.	Meridional distances from even degree parallels.	Co-ordinates of developed parallel for—							
		15′ longitude.		30′ longitude.		45′ longitude.		1° longitude.	
		x	y	x	y	x	y	x	y
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
35 00	----------	3.594	.004	7.188	.018	10.782	.040	14.376	.072
15	4.368	3.583	.004	7.166	.018	10.749	.041	14.332	.072
30	8.735	3.572	.004	7.144	.018	10.716	.041	14.288	.072
45	13.103	3.561	.005	7.122	.018	10.683	.041	14.244	.073
36 00	17.471	3.550	.005	7.100	.018	10.650	.041	14.200	.073
15	4.368	3.539	.005	7.077	.018	10.616	.041	14.154	.073
30	8.736	3.527	.005	7.054	.018	10.582	.041	14.109	.073
45	13.105	3.516	.005	7.032	.018	10.547	.041	14.063	.073
37 00	17.473	3.504	.005	7.009	.018	10.513	.041	14.018	.074
15	4.369	3.493	.005	6.986	.018	10.479	.041	13.972	.074
30	8.738	3.481	.005	6.963	.018	10.444	.042	13.925	.074
45	13.108	3.470	.005	6.939	.018	10.409	.042	13.879	.074
38 00	17.477	3.458	.005	6.916	.019	10.374	.042	13.832	.074
15	4.370	3.446	.005	6.892	.019	10.339	.042	13.785	.074
30	8.740	3.434	.005	6.869	.019	10.303	.042	13.737	.075
45	13.110	3.422	.005	6.845	.019	10.267	.042	13.690	.075
39 00	17.480	3.411	.005	6.821	.019	10.232	.042	13.642	.075
15	4.371	3.398	.005	6.797	.019	10.195	.042	13.594	.075
30	8.741	3.386	.005	6.773	.019	10.159	.042	13.545	.075
45	13.112	3.374	.005	6.748	.019	10.123	.042	13.497	.075
40 00	17.483	3.362	.005	6.724	.019	10.086	.042	13.448	.075
15	4.371	3.350	.005	6.699	.019	10.049	.042	13.399	.075
30	8.743	3.337	.005	6.675	.019	10.012	.043	13.349	.076
45	13.114	3.325	.005	6.650	.019	9.975	.043	13.300	.076
41 00	17.486	3.312	.005	6.625	.019	9.937	.043	13.250	.076
15	4.372	3.300	.005	6.600	.019	9.900	.043	13.200	.076
30	8.744	3.287	.005	6.575	.019	9.862	.043	13.149	.076
45	13.117	3.275	.005	6.549	.019	9.824	.043	13.098	.076
42 00	17.489	3.262	.005	6.524	.019	9.786	.043	13.048	.076
15	4.373	3.249	.005	6.498	.019	9.747	.043	12.996	.076
30	8.746	3.236	.005	6.472	.019	9.709	.043	12.945	.076
45	13.119	3.223	.005	6.447	.019	9.670	.043	12.893	.076
43 00	17.492	3.210	.005	6.421	.019	9.631	.043	12.842	.076
15	4.374	3.197	.005	6.394	.019	9.592	.043	12.789	.076
30	8.747	3.184	.005	6.368	.019	9.552	.043	12.736	.076
45	13.121	3.170	.005	6.342	.019	9.513	.043	12.684	.076
44 00	17.495	3.158	.005	6.316	.019	9.473	.043	12.631	.077
15	4.375	3.144	.005	6.289	.019	9.433	.043	12.578	.077
30	8.749	3.131	.005	6.262	.019	9.393	.043	12.524	.077
45	13.124	3.118	.005	6.235	.019	9.353	.043	12.471	.077
45 00	17.498	3.104	.005	6.209	.019	9.313	.043	12.417	.077

TABLE V.—*Co-ordinates for projection of maps. Scale* $\frac{1}{250000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Meridional distances from even degree parallels.	Co-ordinates of developed parallel for—							
		15′ longitude.		30′ longitude.		45′ longitude.		1° longitude.	
		x	y	x	y	x	y	x	y
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
45 00	----------	3.104	.005	6.209	.019	9.313	.043	12.417	.077
15	4.375	3.091	.005	6.181	.019	9.272	.043	12.363	.077
30	8.751	3.077	.005	6.154	.019	9.231	.043	12.308	.077
45	13.126	3.063	.005	6.127	.019	9.190	.043	12.254	.077
46 00	17.501	3.050	.005	6.100	.019	9.150	.043	12.200	.077
15	4.376	3.036	.005	6.072	.019	9.108	.043	12.144	.077
30	8.752	3.022	.005	6.044	.019	9.067	.043	12.089	.077
45	13.128	3.008	.005	6.017	.019	9.025	.043	12.033	.077
47 00	17.504	2.994	.005	5.989	.019	8.983	.043	11.978	.076
15	4.377	2.980	.005	5.961	.019	8.941	.043	11.922	.076
30	8.754	2.966	.005	5.933	.019	8.899	.043	11.865	.076
45	13.131	2.952	.005	5.904	.019	8.857	.043	11.809	.076
48 00	17.508	2.938	.005	5.876	.019	8.814	.043	11.752	.076
15	4.378	2.924	.005	5.848	.019	8.771	.043	11.695	.076
30	8.755	2.909	.005	5.819	.019	8.728	.043	11.638	.076
45	13.133	2.895	.005	5.790	.019	8.686	.043	11.581	.076
49 00	17.511	2.881	.005	5.762	.019	8.643	.043	11.524	.076
15	4.378	2.866	.005	5.733	.019	8.599	.043	11.465	.076
30	8.757	2.852	.005	5.704	.019	8.555	.043	11.407	.076
45	13.135	2.837	.005	5.675	.019	8.512	.042	11.349	.076
50 00	17.514	2.823	.005	5.646	.019	8.468	.042	11.291	.076

TABLE VI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{126720}$.

[Derivation of table explained in section (5). Use of table explained on page 22.]

Latitude of parallel.	Meridional distances from even degree parallels.	Co-ordinates of developed parallel for—							
		15′ longitude.		30′ longitude.		45′ longitude.		1° longitude.	
		x	y	x	y	x	y	x	y
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
25 00	----------	7.841	.007	15.682	.029	23.523	.065	31.364	.116
15	8.604	7.825	.007	15.650	.029	23.475	.065	31.300	.117
30	17.207	7.809	.007	15.617	.029	23.426	.066	31.235	.117
45	25.811	7.793	.007	15.585	.030	23.378	.067	31.170	.118
26 00	34.415	7.776	.007	15.553	.030	23.329	.067	31.106	.119
15	8.605	7.760	.007	15.519	.030	23.279	.067	31.039	.120
30	17.210	7.743	.008	15.486	.030	23.229	.068	30.972	.121
45	25.814	7.726	.008	15.452	.030	23.179	.068	30.905	.121
27 00	34.419	7.709	.008	15.419	.031	23.128	.069	30.838	.122
15	8.606	7.692	.008	15.384	.031	23.076	.069	30.769	.123
30	17.212	7.675	.008	15.350	.031	23.024	.070	30.699	.124
45	25.818	7.657	.008	15.315	.031	22.972	.070	30.630	.124
28 00	34.424	7.640	.008	15.280	.031	22.920	.070	30.560	.125
15	8.607	7.622	.008	15.244	.031	22.866	.071	30.489	.126
30	17.215	7.604	.008	15.208	.032	22.813	.071	30.417	.127
45	25.822	7.586	.008	15.173	.032	22.759	.072	30.345	.127
29 00	34.430	7.568	.008	15.137	.032	22.705	.072	30.274	.128
15	8.609	7.550	.008	15.100	.032	22.650	.072	30.200	.129
30	17.217	7.531	.008	15.063	.032	22.594	.073	30.125	.130
45	25.826	7.513	.008	15.026	.033	22.539	.073	30.051	.130
30 00	34.435	7.494	.008	14.989	.033	22.483	.074	29.978	.131
15	8.610	7.475	.008	14.951	.033	22.426	.074	29.902	.131
30	17.220	7.456	.008	14.913	.033	22.369	.074	29.825	.132
45	25.830	7.437	.008	14.874	.033	22.312	.075	29.749	.133
31 00	34.440	7.418	.008	14.836	.033	22.254	.075	29.672	.133
15	8.611	7.398	.008	14.797	.033	22.195	.075	29.594	.134
30	17.223	7.379	.008	14.758	.034	22.137	.076	29.515	.135
45	25.834	7.359	.008	14.718	.034	22.078	.076	29.437	.135
32 00	34.446	7.340	.008	14.679	.034	22.019	.076	29.358	.136
15	8.613	7.319	.008	14.639	.034	21.958	.077	29.278	.136
30	17.225	7.299	.009	14.598	.034	21.898	.077	29.197	.137
45	25.838	7.279	.009	14.558	.034	21.837	.077	29.116	.137
33 00	34.451	7.259	.009	14.518	.034	21.777	.078	29.036	.138
15	8.614	7.238	.009	14.476	.035	21.714	.078	28.953	.138
30	17.228	7.217	.009	14.435	.035	21.652	.078	28.869	.139
45	25.842	7.197	.009	14.393	.035	21.590	.078	28.786	.139
34 00	34.456	7.176	.009	14.352	.035	21.527	.079	28.703	.140
15	8.615	7.154	.009	14.309	.035	21.464	.079	28.618	.141
30	17.231	7.133	.009	14.266	.035	21.400	.079	28.533	.141
45	25.846	7.112	.009	14.224	.035	21.336	.080	28.448	.142
35 00	34.462	7.091	.009	14.181	.035	21.272	.080	28.362	.142

TABLE VI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{126720}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Meridional distances from even degree parallels.	Co-ordinates of developed parallel for—							
		15′ longitude.		30′ longitude.		45′ longitude.		1° longitude.	
		x	y	x	y	x	y	x	y
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
35 00	----------	7.091	.009	14.181	.035	21.272	.080	28.362	.142
15	8.617	7.069	.009	14.138	.036	21.207	.080	28.275	.142
30	17.234	7.047	.009	14.094	.036	21.141	.080	28.188	.143
45	25.851	7.025	.009	14.050	.036	21.076	.080	28.101	.143
36 00	34.468	7.003	.009	14.007	.036	21.010	.081	28.014	.144
15	8.618	6.981	.009	13.962	.036	20.943	.081	27.924	.144
30	17.237	6.959	.009	13.917	.036	20.876	.081	27.835	.144
45	25.855	6.936	.009	13.873	.036	20.809	.081	27.745	.145
37 00	34.474	6.914	.009	13.828	.036	20.742	.082	27.655	.145
15	8.620	6.891	.009	13.782	.036	30.673	.082	27.564	.145
30	17.240	6.868	.009	13.736	.036	20.604	.082	27.472	.146
45	25.860	6.845	.009	13.690	.037	20.536	.082	27.381	.146
38 00	34.480	6.822	.009	13.645	.037	20.467	.082	27.289	.147
15	8.621	6.799	.009	13.598	.037	20.397	.083	27.196	.147
30	17.243	6.775	.009	13.551	.037	20.326	.083	27.102	.147
45	25.864	6.752	.009	13.504	.037	20.256	.083	27.008	.147
39 00	34.485	6.729	.009	13.457	.037	20.186	.083	26.914	.148
15	8.623	6.705	.009	13.409	.037	20.114	.083	26.819	.148
30	17.246	6.681	.009	13.361	.037	20.042	.083	26.723	.148
45	25.868	6.657	.009	13.314	.037	19.970	.084	26.627	.148
40 00	34.491	6.633	.009	13.266	.037	19.899	.084	26.532	.149
15	8.624	6.608	.009	13.217	.037	19.825	.884	26.434	.149
30	17.249	6.584	.009	13.168	.037	19.752	.084	26.336	.149
45	25.873	6.560	.009	13.119	.037	19.679	.084	26.238	.149
41 00	34.497	6.535	.009	13.070	.037	19.605	.084	26.140	.150
15	8.625	6.510	.009	13.020	.037	19.530	.084	26.041	.150
30	17.250	6.485	.009	12.970	.037	19.456	.084	25.941	.150
45	25.875	6.460	.009	12.920	.037	19.381	.084	25.841	.150
42 00	34.500	6.435	.009	12.871	.037	19.306	.085	25.741	.150
15	8.627	6.410	.009	12.820	.037	19.230	.085	25.640	.150
30	17.255	6.385	.009	12.769	.038	19.154	.085	25.538	.151
45	25.882	6.359	.009	12.718	.038	19.077	.085	25.436	.151
43 00	34.510	6.334	.009	12.667	.038	19.001	.085	25.335	.151
15	8.629	6.308	.009	12.615	.038	18.923	.085	25.231	.151
30	17.257	6.282	.009	12.563	.038	18.845	.085	25.127	.151
45	25.886	6.256	.009	12.512	.038	18.767	.085	25.023	.151
44 00	34.515	6.230	.009	12.460	.038	18.689	.085	24.919	.151
15	8.630	6.203	.009	12.407	.038	18.610	.085	24.814	.151
30	17.261	6.177	.009	12.354	.038	18.531	.085	24.708	.151
45	25.891	6.151	.009	12.301	.038	18.452	.085	24.603	.151
45 00	34.522	6.124	.009	12.249	.038	18.373	.085	24.497	.151

TABLE VI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{126720}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.		Meridional distances from even degree parallels.	Co-ordinates of developed parallel for—							
			15′ longitude.		30′ longitude.		45′ longitude.		1° longitude.	
			x	y	x	y	x	y	x	y
°	′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
45	00	----------	6.124	.009	12.249	.038	18.373	.085	24.497	.151
	15	8.632	6.097	.009	12.195	.038	18.292	.085	24.390	.151
	30	17.264	6.071	.009	12.141	.038	18.212	.085	24.283	.151
	45	25.896	6.044	.009	12.088	.038	18.131	.085	24.175	.151
46	00	34.528	6.017	.009	12.034	.038	18.051	.085	24.068	.151
	15	8.633	5.990	.009	11.979	.038	17.969	.085	23.959	.151
	30	17.267	5.962	.009	11.925	.038	17.887	.085	23.849	.151
	45	25.901	5.935	.009	11.870	.038	17.805	.085	23.740	.151
47	00	34.534	5.908	.009	11.815	.038	17.723	.085	23.631	.151
	15	8.635	5.880	.009	11.760	.038	17.640	.085	23.520	.151
	30	17.270	5.852	.009	11.704	.038	17.556	.085	23.408	.151
	45	25.905	5.824	.009	11.648	.038	17.473	.085	23.297	.151
48	00	34.540	5.796	.009	11.593	.038	17.389	.085	23.186	.150
	15	8.637	5.768	.009	11.536	.038	17.305	.085	23.073	.150
	30	17.273	5.740	.009	11.480	.038	17.220	.084	22.960	.150
	45	25.910	5.712	.009	11.424	.037	17.135	.084	22.847	.150
49	00	34.546	5.684	.009	11.367	.037	17.051	.084	22.734	.150
	15	8.638	5.655	.009	11.310	.037	16.965	.084	22.620	.150
	30	17.276	5.626	.009	11.253	.037	16.879	.084	22.505	.150
	45	25.914	5.598	.009	11.195	.037	16.793	.084	22.391	.150
50	00	34.552	5.569	.009	11.138	.037	16.707	.084	22.276	.150

TABLE VII.—*Co-ordinates for projection of maps. Scale* $\frac{1}{126000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.		Meridional distances from even degree parallels.	Abscissas of developed parallel.						Ordinates of developed parallel.		
			5′ longitude.	10′ longitude.	15′ longitude.	20′ longitude.	25′ longitude.	30′ longitude.	Longitude interval.	25°	26°
°	′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*	*Inches.*
25	00	----------	2.650	5.299	7.949	10.599	13.249	15.898	5	0.001	0.001
	10	5.815	2.646	5.292	7.938	10.584	13.231	15.877	10	.003	.003
	20	11.629	2.642	5.285	7.927	10.570	13.212	15.854	15	.007	.008
	30	17.444	2.639	5.278	7.916	10.555	13.194	15.833	20	.013	.013
	40	23.259	2.635	5.270	7.905	10.540	13.176	15.811	25	.020	.021
	50	29.074	2.631	5.263	7.894	10.526	13.157	15.788	30	.029	.030
26	00	----------	2.628	5.256	7.883	10.511	13.139	15.767		27°	28°
	10	5.816	2.624	5.248	7.872	10.496	13.120	15.744	5	0.001	0.001
	20	11.631	2.620	5.240	7.861	10.481	13.101	15.721	10	.003	.004
	30	17.446	2.616	5.233	7.849	10.466	13.082	15.698	15	.008	.008
	40	23.262	2.613	5.225	7.838	10.451	13.063	15.676	20	.014	.014
	50	29.077	2.609	5.218	7.827	10.436	13.045	15.654	25	.022	.022
27	00	----------	2.605	5.210	7.816	10.421	13.026	15.631	30	.031	.032
	10	5.816	2.601	5.203	7.804	10.405	13.006	15.608			
	20	11.633	2.597	5.195	7.792	10.390	12.987	15.584			
	30	17.449	2.593	5.187	7.780	10.374	12.967	15.560			
	40	23.265	2.589	5.179	7.768	10.358	12.947	15.537			
	50	29.082	2.586	5.171	7.757	10.342	12.928	15.514			
28	00	----------	2.582	5.163	7.745	10.327	12.909	15.490			
	10	5.817	2.578	5.155	7.733	10.311	12.889	15.466			
	20	11.634	2.574	5.147	7.721	10.294	12.868	15.442			
	30	17.451	2.570	5.139	7.709	10.278	12.848	15.418			
	40	23.268	2.566	5.131	7.697	10.262	12.828	15.394			
	50	29.086	2.562	5.123	7.685	10.246	12.808	15.369			
29	00	----------	2.558	5.115	7.673	10.230	12.788	15.345			
	10	5.818	2.553	5.107	7.660	10.213	12.767	15.320			
	20	11.636	2.549	5.098	7.648	10.197	12.746	15.295			
	30	17.454	2.545	5.090	7.635	10.180	12.725	15.270			
	40	23.272	2.541	5.082	7.622	10.163	12.704	15.245			
	50	29.090	2.537	5.073	7.610	10.146	12.683	15.220			
30	00	----------	2.533	5.065	7.598	10.130	12.662	15.195			
	10	5.819	2.528	5.056	7.585	10.113	12.641	15.169			
	20	11.638	2.524	5.048	7.572	10.096	12.620	15.143			
	30	17.457	2.520	5.039	7.559	10.078	12.598	15.118			
	40	23.276	2.515	5.031	7.546	10.061	12.577	15.092			
	50	29.094	2.511	5.022	7.533	10.044	12.555	15.066			
31	00	----------	2.507	5.014	7.520	10.027	12.534	15.040			

Longitude interval. 28° 29°

′	*Inches.*	*Inches.*
5	0.001	0.001
10	.004	.004
15	.008	.008
20	.014	.014
25	.022	.023
30	.032	.032

	30°	31°
5	0.001	0.001
10	.004	.004
15	.008	.008
20	.015	.015
25	.023	.023
30	.033	.034

TABLE VII.—*Co-ordinates for projection of maps. Scale* $\frac{1}{125000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.		Meridional distances from even degree parallels.	Abscissas of developed parallel.						Ordinates of developed parallel.		
			5′ longitude.	10′ longitude.	15′ longitude.	20′ longitude.	25′ longitude.	30′ longitude.			
°	′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	Longitude interval.	31°	32°
31	00	----------	2.507	5.014	7.520	10.027	12.534	15.040	′	*Inches.*	*Inches.*
	10	5.820	2.502	5.005	7.507	10.009	12.512	15.014	5	0.001	0.001
	20	11.640	2.498	4.996	7.494	9.992	12.490	14.987	10	.004	.004
	30	17.460	2.493	4.987	7.480	9.974	12.467	14.960	15	.008	.009
	40	23.280	2.489	4.978	7.467	9.956	12.445	14.934	20	.015	.015
	50	29.100	2.485	4.969	7.454	9.938	12.423	14.908	25	.023	.024
32	00	----------	2.480	4.960	7.441	9.921	12.401	14.881	30	.034	.034
	10	5.821	2.476	4.951	7.427	9.903	12.379	14.854		33°	34°
	20	11.642	2.471	4.942	7.413	9.884	12.355	14.827			
	30	17.462	2.467	4.933	7.400	9.866	12.333	14.800	5	0.001	0.001
	40	23.283	2.462	4.924	7.386	9.848	12.310	14.772	10	.004	.004
	50	29.104	2.458	4.915	7.373	9.830	12.288	14.745	15	.009	.009
33	00	----------	2.453	4.906	7.359	9.812	12.265	14.717	20	.016	.016
	10	5.822	2.448	4.896	7.345	9.793	12.241	14.689	25	.024	.025
	20	11.643	2.444	4.887	7.331	9.774	12.218	14.661	30	.035	.036
	30	17.465	2.439	4.878	7.316	9.755	12.194	14.633			
	40	23.287	2.434	4.868	7.302	9.736	12.171	14.605			
	50	29.109	2.429	4.859	7.288	9.718	12.147	14.576			
34	00	----------	2.425	4.850	7.274	9.699	12.124	14.549	Longitude interval.	34°	35°
	10	5.823	2.420	4.840	7.260	9.680	12.100	14.520			
	20	11.645	2.415	4.830	7.246	9.661	12.076	14.491			
	30	17.468	2.410	4.821	7.231	9.642	12.052	14.462			
	40	23.291	2.406	4.811	7.217	9.622	12.028	14.434			
	50	29.113	2.401	4.802	7.203	9.604	12.004	14.405			
35	00	----------	2.396	4.792	7.188	9.584	11.980	14.376	′	*Inches.*	*Inches.*
	10	5.824	2.391	4.782	7.174	9.565	11.956	14.347	5	0.001	0.001
	20	11.647	2.386	4.773	7.159	9.545	11.932	14.318	10	.004	.004
	30	17.471	2.381	4.763	7.144	9.526	11.907	14.288	15	.009	.009
	40	23.294	2.377	4.753	7.130	9.506	11.883	14.259	20	.016	.016
	50	29.118	2.372	4.743	7.115	9.486	11.858	14.230	25	.025	.025
36	00	----------	2.367	4.733	7.099	9.466	11.833	14.200	30	.036	.036
	10	5.824	2.362	4.723	7.085	9.446	11.808	14.170		36°	37°
	20	11.649	2.357	4.713	7.070	9.426	11.783	14.139			
	30	17.473	2.351	4.703	7.055	9.406	11.757	14.109	5	0.001	0.001
	40	23.297	2.346	4.693	7.039	9.386	11.732	14.078	10	.004	.004
	50	29.122	2.341	4.683	7.024	9.366	11.707	14.048	15	.009	.009
									20	.016	.016
37	00	----------	2.336	4.673	7.009	9.345	11.682	14.018	25	.025	.026
									30	.036	.037

TABLE VII.—*Co-ordinates for projection of maps. Scale* $\frac{1}{125000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Meridional distances from even degree parallels.	Abscissas of developed parallel.						Ordinates of developed parallel.		
		5′ longitude.	10′ longitude.	15′ longitude.	20′ longitude.	25′ longitude.	30′ longitude.	Longitude interval.	37°	38°
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*	*Inches.*
37 00	----------	2.336	4.673	7.009	9.345	11.682	14.018	5	0.001	0.001
10	5.826	2.331	4.662	6.994	9.325	11.656	13.987	10	.004	.004
20	11.651	2.326	4.652	6.978	9.304	11.630	13.956	15	.009	.009
30	17.477	2.321	4.642	6.963	9.284	11.605	13.925	20	.016	.017
40	23.302	2.316	4.631	6.947	9.263	11.579	13.894	25	.026	.026
50	29.128	2.311	4.621	6.932	9.242	11.553	13.864	30	.037	.037
38 00	----------	2.305	4.611	6.916	9.222	11.527	13.832		39°	40°
10	5.827	2.300	4.600	6.900	9.200	11.501	13.801			
20	11.653	2.295	4.590	6.884	9.179	11.474	13.769	5	0.001	0.001
30	17.480	2.290	4.579	6.869	9.158	11.448	13.737	10	.004	.004
40	23.306	2.284	4.568	6.853	9.137	11.421	13.705	15	.009	.009
50	29.133	2.279	4.558	6.837	9.116	11.395	13.673	20	.017	.017
39 00	----------	2.274	4.548	6.821	9.095	11.369	13.642	25	.026	.026
10	5.828	2.268	4.537	6.805	9.073	11.342	13.610	30	.037	.038
20	11.655	2.263	4.526	6.789	9.052	11.315	13.577			
30	17.483	2.258	4.515	6.773	9.030	11.288	13.545			
40	23.310	2.252	4.504	6.756	9.008	11.261	13.513			
50	29.138	2.247	4.493	6.740	8.987	11.234	13.480			
40 00	----------	2.241	4.483	6.724	8.965	11.207	13.448	Longitude interval.	40°	41°
10	5.829	2.236	4.472	6.707	8.943	11.179	13.415			
20	11.657	2.230	4.461	6.691	8.921	11.152	13.382			
30	17.486	2.225	4.450	6.674	8.899	11.124	13.349			
40	23.314	2.219	4.439	6.658	8.877	11.097	13.316			
50	29.143	2.214	4.428	6.641	8.855	11.069	13.283			
41 00	----------	2.208	4.417	6.625	8.834	11.042	13.250	′	*Inches.*	*Inches.*
10	5.830	2.203	4.406	6.608	8.811	11.014	13.217	5	0.001	0.001
20	11.659	2.197	4.394	6.591	8.788	10.985	13.183	10	.004	.004
30	17.489	2.192	4.383	6.575	8.766	10.958	13.149	15	.009	.009
40	23.319	2.186	4.372	6.558	8.744	10.929	13.115	20	.017	.017
50	29.149	2.180	4.360	6.541	8.721	10.901	13.081	25	.026	.026
42 00	----------	2.175	4.349	6.524	8.698	10.873	13.048	30	.038	.038
10	5.831	2.169	4.338	6.507	8.676	10.844	13.013		42°	43°
20	11.661	2.163	4.326	6.490	8.653	10.816	12.979			
30	17.492	2.157	4.315	6.472	8.630	10.787	12.945	5	0.001	0.001
40	23.323	2.152	4.303	6.455	8.607	10.759	12.910	10	.004	.004
50	29.154	2.146	4.292	6.438	8.584	10.730	12.876	15	.010	.010
43 00	----------	2.140	4.281	6.421	8.561	10.702	12.842	20	.017	.017
								25	.026	.027
								30	.038	.038

TABLE VII.—*Co-ordinates for projection of maps. Scale* $\frac{1}{125000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Meridional distances from even degree parallels.	Abscissas of developed parallel.						Ordinates of developed parallel.		
		5′ longitude.	10′ longitude.	15′ longitude.	20′ longitude.	25′ longitude.	30′ longitude.	Longitude interval.	43°	44°
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*	*Inches.*
43 00	----------	2.140	4.281	6.421	8.561	10.701	12.842	5	0.001	0.001
10	5.832	2.135	4.269	6.403	8.538	10.672	12.807	10	.004	.004
20	11.663	2.129	4.257	6.386	8.514	10.643	12.772	15	.010	.010
30	17.495	2.123	4.246	6.368	8.491	10.614	12.737	20	.017	.017
40	23.327	2.117	4.234	6.351	8.468	10.585	12.701	25	.027	.027
50	29.159	2.111	4.222	6.333	8.444	10.556	12.667	30	.038	.038
44 00	----------	2.105	4.210	6.316	8.421	10.526	12.631		45°	46°
10	5.833	2.099	4.199	6.298	8.397	10.496	12.596	′	*Inches.*	*Inches.*
20	11.666	2.093	4.187	6.280	8.373	10.467	12.560	5	0.001	0.001
30	17.498	2.087	4.175	6.262	8.350	10.437	12.524	10	.004	.004
40	23.331	2.081	4.163	6.244	8.326	10.407	12.489	15	.010	.010
50	29.164	2.076	4.151	6.227	8.302	10.378	12.453	20	.017	.017
45 00	----------	2.070	4.139	6.209	8.278	10.348	12.417	25	.027	.027
10	5.834	2.064	4.127	6.191	8.254	10.317	12.381	30	.038	.038
20	11.668	2.057	4.115	6.172	8.230	10.288	12.345		47°	48°
30	17.501	2.051	4.103	6.154	8.206	10.257	12.308	′	*Inches.*	*Inches.*
40	23.335	2.045	4.091	6.136	8.181	10.226	12.272	5	0.001	0.001
50	29.169	2.039	4.079	6.118	8.157	10.197	12.236	10	.004	.004
46 00	----------	2.033	4.067	6.100	8.133	10.166	12.199	15	.010	.010
10	5.835	2.027	4.054	6.081	8.108	10.136	12.163	20	.017	.017
20	11.670	2.021	4.042	6.063	8.084	10.104	12.125	25	.027	.027
30	17.504	2.015	4.030	6.044	8.059	10.074	12.089	30	.038	.038
40	23.339	2.009	4.017	6.026	8.034	10.043	12.052		49°	50°
50	29.174	2.003	4.005	6.008	8.010	10.013	12.015	′	*Inches.*	*Inches.*
47 00	----------	1.996	3.992	5.989	7.985	9.981	11.978	5	0.001	0.001
10	5.836	1.990	3.980	5.970	7.960	9.951	11.941	10	.004	.004
20	11.672	1.984	3.968	5.951	7.935	9.919	11.903	15	.010	.010
30	17.508	1.978	3.955	5.933	7.910	9.888	11.866	20	.017	.017
40	23.344	1.971	3.943	5.914	7.885	9.857	11.828	25	.027	.026
50	29.180	1.965	3.930	5.895	7.860	9.826	11.791	30	.038	.038
48 00	----------	1.959	3.917	5.876	7.835	9.794	11.752			
10	5.837	1.952	3.905	5.857	7.810	9.762	11.714			
20	11.674	1.946	3.892	5.838	7.784	9.730	11.677			
30	17.511	1.940	3.879	5.819	7.759	9.699	11.638			
40	23.348	1.933	3.867	5.800	7.733	9.667	11.600			
50	29.185	1.927	3.854	5.781	7.708	9.635	11.562			
49 00	----------	1.921	3.841	5.762	7.682	9.603	11.523			
10	5.838	1.914	3.828	5.743	7.657	9.571	11.485			
20	11.676	1.908	3.815	5.723	7.631	9.539	11.446			
30	17.514	1.901	3.803	5.704	7.605	9.507	11.408			
40	23.352	1.895	3.790	5.684	7.579	9.474	11.369			
50	29.190	1.888	3.777	5.665	7.553	9.442	11.330			
50 00	----------	1.882	3.764	5.646	7.527	9.409	11.291			

TABLE VIII.—*Co-ordinates for projection of maps. Scale* $\frac{1}{63360}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.		Meridional distances from even degree parallels.	Abscissas of developed parallel.						Ordinates of developed parallel.		
			5′ longitude.	10′ longitude.	15′ longitude.	20′ longitude.	25′ longitude.	30′ longitude.	Longitude interval.	25°	26°
°	′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*			
25	00	----------	5.227	10.455	15.682	20.910	26.137	31.365	′	*Inches.*	*Inches.*
	10	11.472	5.220	10.441	15.661	20.881	26.101	31.322	5	0.002	0.002
	20	22.943	5.213	10.426	15.639	20.852	26.065	31.279	10	0.006	0.007
	30	34.415	5.206	10.412	15.618	20.824	26.029	31.235	15	0.014	0.015
	40	45.886	5.199	10.397	15.596	20.795	25.993	31.192	20	0.026	0.026
	50	57.358	5.191	10.383	15.575	20.766	25.958	31.149	25	0.040	0.041
26	00	68.830	5.184	10.369	15.553	20.737	25.922	31.106	30	0.058	0.059
	10	11.473	5.177	10.354	15.531	20.708	25.884	31.061		27°	28°
	20	22.946	5.169	10.339	15.508	20.678	25.847	31.017			
	30	34.419	5.162	10.324	15.486	20.648	25.810	30.972	5	0.002	0.002
	40	45.892	5.154	10.309	15.463	20.618	25.772	30.927	10	0.007	0.007
	50	57.365	5.147	10.294	15.441	20.588	25.735	30.882	15	0.015	0.016
27	00	68.838	5.140	10.279	15.419	20.558	25.698	30.838	20	0.027	0.028
	10	11.475	5.132	10.264	15.396	20.528	25.659	30.791	25	0.042	0.043
	20	22.950	5.124	10.248	15.373	20.497	25.621	30.745	30	0.061	0.063
	30	34.424	5.116	10.233	15.349	20.466	25.582	30.699			
	40	45.899	5.109	10.218	15.326	20.435	25.544	30.653			
	50	57.374	5.101	10.202	15.303	20.404	25.505	30.607			
28	00	68.849	5.093	10.187	15.280	20.374	25.467	30.560			
	10	11.476	5.085	10.171	15.256	20.342	25.427	30.513	Longitude interval.	28°	29°
	20	22.953	5.077	10.155	15.232	20.310	25.387	30.465			
	30	34.430	5.069	10.139	15.208	20.278	25.347	30.417			
	40	45.906	5.061	10.123	15.185	20.246	25.308	30.369			
	50	57.383	5.054	10.107	15.161	20.214	25.268	30.321	′	*Inches.*	*Inches.*
29	00	68.859	5.046	10.091	15.137	20.182	25.228	30.274	5	0.002	0.002
	10	11.478	5.037	10.075	15.112	20.150	25.187	30.224	10	0.007	0.007
	20	22.957	5.029	10.058	15.087	20.117	25.146	30.175	15	0.016	0.016
	30	34.435	5.021	10.042	15.063	20.084	25.105	30.126	20	0.028	0.028
	40	45.913	5.013	10.025	15.038	20.051	25.064	30.076	25	0.043	0.044
	50	57.391	5.004	10.009	15.013	20.018	25.022	30.027	30	0.063	0.064
30	00	68.870	4.996	9.993	14.989	19.985	24.981	29.978		30°	31°
	10	11.480	4.988	9.976	14.963	19.951	24.939	29.927	5	0.002	0.002
	20	22.960	4.979	9.959	14.938	19.917	24.896	29.876	10	0.007	0.007
	30	34.440	4.971	9.942	14.912	19.883	24.854	29.825	15	0.016	0.017
	40	45.920	4.962	9.925	14.887	19.849	24.812	29.774	20	0.029	0.030
	50	57.400	4.954	9.908	14.862	19.815	24.769	29.723	25	0.045	0.046
31	00	68.880	4.945	8.891	14.836	19.782	24.727	29.672	30	0.065	0.067

TABLE VIII.—*Co-ordinates for projection of maps. Scale* $\frac{1}{63360}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.		Meridional distances from even degree parallels.	Abscissas of developed parallel.						Ordinates of developed parallel.		
			5′ longitude.	10′ longitude.	15′ longitude.	20′ longitude.	25′ longitude.	30′ longitude.	Longitude interval.	31°	32°
°	′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*			
31	00	68.880	4.945	9.891	14.836	19.782	24.727	29.672			
	10	11.482	4.937	9.873	14.810	19.747	24.683	29.620			
	20	22.964	4.928	9.856	14.784	19.712	24.640	29.568	′	*Inches.*	*Inches.*
	30	34.446	4.919	9.838	14.758	19.677	24.596	29.515	5	0.002	0.002
	40	45.927	4.910	9.821	14.731	19.642	24.552	29.463	10	0.007	0.007
	50	57.409	4.902	9.804	14.705	19.607	24.509	29.411	15	0.017	0.017
									20	0.030	0.030
32	00	68.891	4.893	9.786	14.679	19.572	24.465	29.358	25	0.046	0.047
									30	0.067	0.068
	10	11.484	4.884	9.768	14.652	19.536	24.420	29.305			
	20	22.967	4.875	9.750	14.625	19.500	24.376	29.251		33°	34°
	30	34.451	4.866	9.732	14.598	19.465	24.331	29.197			
	40	45.934	4.857	9.714	14.572	19.429	24.286	29.143			
	50	57.418	4.848	9.696	14.545	19.393	24.241	29.089	5	0.002	0.002
									10	0.008	0.008
33	00	68.902	4.839	9.679	14.518	19.357	24.196	29.036	15	0.017	0.017
									20	0.031	0.031
	10	11.485	4.830	9.660	14.490	19.320	24.150	28.980	25	0.048	0.049
	20	22.971	4.821	9.642	14.462	19.283	24.104	28.925	30	0.069	0.070
	30	34.456	4.812	9.623	14.435	19.246	24.058	28.870			
	40	45.942	4.802	9.605	14.407	19.210	24.012	28.814			
	50	57.427	4.793	9.586	14.379	19.173	23.966	28.759			
34	00	68.913	4.784	9.568	14.352	19.136	23.920	28.704			
	10	11.487	4.774	9.549	14.323	19.098	23.872	28.647			
	20	22.975	4.765	9.530	14.295	19.060	23.825	28.590			
	30	34.462	4.755	9.511	14.267	19.022	23.778	28.533			
	40	45.949	4.746	9.492	14.238	18.984	23.730	28.476			
	50	57.437	4.737	9.473	14.210	18.946	23.683	28.420	Longitude interval.	34°	35°
35	00	68.924	4.727	9.454	14.181	18.908	23.636	28.363			
	10	11.489	4.717	9.435	14.152	18.870	23.587	28.305	′	*Inches.*	*Inches.*
	20	22.978	4.708	9.415	14.123	18.831	23.539	28.246	5	0.002	0.002
	30	34.468	4.698	9.396	14.094	18.792	23.490	28.188	10	0.008	0.008
	40	45.957	4.688	9.377	14.065	18.753	23.442	28.130	15	0.017	0.018
	50	57.446	4.679	9.357	14.036	18.714	23.393	28.072	20	0.031	0.031
									25	0.049	0.049
36	00	68.935	4.669	9.338	14.007	18.676	23.345	28.014	30	0.070	0.071
	10	11.491	4.659	9.318	13.977	18.636	23.295	27.954		36°	37°
	20	22.983	4.649	9.298	13.947	18.596	23.245	27.894	5	0.002	0.002
	30	34.474	4.639	9.278	13.917	18.556	23.195	27.835	10	0.008	0.008
	40	45.965	4.629	9.258	13.887	18.517	23.146	27.775	15	0.018	0.018
	50	57.457	4.619	9.238	13.858	18.477	23.096	27.715	20	0.032	0.032
									25	0.050	0.050
37	00	68.948	4.609	9.219	13.828	18.437	23.046	27.656	30	0.072	0.073

TABLE VIII.—*Co-ordinates for projection of maps. Scale* $\frac{1}{63360}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.		Meridional distances from even degree parallels.	Abscissas of developed parallel.						Ordinates of developed parallel.		
			5′ longitude.	10′ longitude.	15′ longitude.	20′ longitude.	25′ longitude.	30′ longitude.			
°	′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	Longitude interval.	37°	38°
37	00	68.948	4.609	9.219	13.828	18.437	23.046	27.656			
	10	11.493	4.599	9.198	13.797	18.396	22.995	27.594	′	*Inches.*	*Inches.*
	20	22.986	4.589	9.178	13.767	18.356	22.944	27.533	5	0.002	0.002
	30	34.480	4.579	9.157	13.736	18.315	22.894	27.472	10	0.008	0.008
	40	45.973	4.568	9.137	13.706	18.274	22.843	27.411	15	0.018	0.018
	50	57.466	4.558	9.117	13.675	18.234	22.792	27.350	20	0.032	0.033
38	00	68.959	4.548	9.096	13.645	18.193	22.741	27.289	25	0.050	0.051
									30	0.073	0.073
	10	11.495	4.538	9.076	13.613	18.151	22.689	27.227		39°	40°
	20	22.990	4.527	9.055	13.582	18.109	22.637	27.164			
	30	34.485	4.517	9.034	13.551	18.068	22.585	27.102	5	0.002	0.002
	40	45.980	4.506	9.013	13.520	18.026	22.533	27.039	10	0.008	0.008
	50	57.475	4.496	8.992	13.488	17.984	22.481	26.977	15	0.018	0.019
39	00	68.970	4.486	8.971	13.457	17.943	22.429	26.914	20	0.033	0.033
									25	0.051	0.052
	10	11.497	4.475	8.950	13.425	17.900	22.375	26.851	30	0.074	0.074
	20	22.994	4.464	8.929	13.393	17.858	22.322	26.787			
	30	34.491	4.454	8.908	13.361	17.815	22.269	26.723	Longitude interval.	40°	41°
	40	45.988	4.443	8.886	13.330	17.773	22.216	26.659			
	50	57.485	4.433	8.865	13.298	17.730	22.163	26.595			
40	00	68.982	4.422	8.844	13.266	17.688	22.110	26.532			
	10	11.499	4.411	8.822	13.233	17.644	22.055	26.466	′	*Inches.*	*Inches.*
	20	22.998	4.400	8.800	13.201	17.601	22.001	26.401	5	0.002	0.002
	30	34.497	4.389	8.779	13.168	17.557	21.947	26.336	10	0.008	0.008
	40	45.996	4.378	8.757	13.135	17.514	21.892	26.271	15	0.019	0.019
	50	57.495	4.368	8.735	13.103	17.470	21.838	26.206	20	0.033	0.033
									25	0.052	0.052
41	00	68.994	4.357	8.713	13.070	17.427	21.784	26.140	30	0.074	0.075
	10	11.501	4.346	8.691	13.037	17.383	21.728	26.074		42°	43°
	20	23.002	4.335	8.669	13.004	17.338	21.673	26.007			
	30	34.503	4.324	8.647	12.971	17.294	21.618	25.941	5	0.002	0.002
	40	46.004	4.312	8.625	12.937	17.250	21.562	25.875	10	0.008	0.008
	50	57.506	4.301	8.603	12.904	17.205	21.507	25.808	15	0.019	0.019
									20	0.033	0.033
42	00	69.007	4.290	8.581	12.871	17.161	21.451	25.742	25	0.052	0.052
									30	0.075	0.075
	10	11.503	4.279	8.558	12.837	17.116	21.395	25.674			
	20	23.006	4.268	8.535	12.803	17.071	21.338	25.606			
	30	34.510	4.256	8.513	12.769	17.025	21.282	25.538			
	40	46.013	4.245	8.490	12.735	16.980	21.225	25.470			
	50	57.516	4.234	8.467	12.701	16.935	21.169	25.402			

TABLE VIII.—*Co-ordinates for projection of maps. Scale* $\frac{1}{63360}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.		Meridional distances from even degree parallels.	Abscissas of developed parallel.					
			5′ longitude.	10′ longitude.	15′ longitude.	20′ longitude.	25′ longitude.	30′ longitude.
°	′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
43	00	69.019	4.222	8.445	12.667	16.890	21.112	25.334
	10	11.505	4.211	8.422	12.633	16.844	21.054	25.265
	20	23.010	4.199	8.399	12.598	16.798	20.997	25.196
	30	34.515	4.188	8.376	12.564	16.751	20.939	25.127
	40	46.020	4.176	8.353	12.529	16.705	20.882	25.058
	50	57.525	4.165	8.330	12.494	16.659	20.824	24.989
44	00	69.030	4.153	8.307	12.460	16.613	20.767	24.920
	10	11.507	4.142	8.283	12.425	16.566	20.708	24.849
	20	23.014	4.130	8.260	12.390	16.519	20.649	24.779
	30	34.522	4.118	8.236	12.354	16.473	20.591	24.709
	40	46.029	4.106	8.213	12.319	16.426	20.532	24.638
	50	57.536	4.095	8.189	12.284	16.379	20.473	24.568
45	00	69.043	4.083	8.166	12.249	16.332	20.415	24.498
	10	11.509	4.071	8.142	12.213	16.284	20.355	24.426
	20	23.018	4.059	8.118	12.177	16.236	20.295	24.354
	30	34.528	4.047	8.094	12.141	16.188	20.236	24.283
	40	46.037	4.035	8.070	12.105	16.141	20.176	24.211
	50	57.546	4.023	8.046	12.070	16.093	20.116	24.139
46	00	69.055	4.011	8.023	12.034	16.045	20.056	24.068
	10	11.511	3.999	7.998	11.997	15.997	19.996	23.995
	20	23.023	3.987	7.974	11.961	15.948	19.935	23.922
	30	34.534	3.975	7.950	11.925	15.899	19.974	23.849
	40	46.045	3.963	7.925	11.888	15.851	19.813	23.776
	50	57.567	3.951	7.901	11.852	15.802	19.753	23.703
47	00	69.068	3.938	7.877	11.815	15.754	19.692	23.630
	10	11.513	3.926	7.852	11.778	15.704	19.630	23.556
	20	23.027	3.914	7.827	11.741	15.655	19.569	23.482
	30	34.540	3.901	7.803	11.704	15.606	19.507	23.408
	40	46.053	3.889	7.778	11.667	15.556	19.445	23.334
	50	57.567	3.877	7.753	11.630	15.507	19.383	23.260
48	00	69.080	3.864	7.729	11.593	15.457	19.322	23.186
	10	11.516	3.852	7.704	11.555	15.407	19.259	23.111
	20	23.031	3.839	7.679	11.518	15.357	19.196	23.035
	30	34.546	3.827	7.653	11.480	15.307	19.134	22.960
	40	46.062	3.814	7.628	11.442	15.257	19.071	22.885
	50	57.577	3.802	7.603	11.405	15.206	19.008	22.810
49	00	69.093	3.789	7.578	11.367	15.156	18.945	22.734
	10	11.517	3.776	7.553	11.329	15.105	18.882	22.658
	20	23.035	3.764	7.527	11.291	15.054	18.818	22.581
	30	34.552	3.751	7.502	11.253	15.003	18.754	22.505
	40	46.070	3.738	7.476	11.214	14.952	18.690	22.429
	50	57.587	3.725	7.451	11.176	14.901	18.627	22.352
50	00	69.105	3.713	7.425	11.138	14.850	18.563	22.276

Ordinates of developed parallel.		
Longitude interval.	43°	44°
′	*Inches.*	*Inches.*
5	0.002	0.002
10	0.008	0.008
15	0.019	0.019
20	0.033	0.034
25	0.052	0.052
30	0.075	0.075
	45°	46°
5	0.002	0.002
10	0.008	0.008
15	0.019	0.019
20	0.034	0.034
25	0.053	0.053
30	0.076	0.076
Longitude interval.	46°	47°
′	*Inches.*	*Inches.*
5	0.002	0.002
10	0.008	0.008
15	0.019	0.019
20	0.034	0.034
25	0.053	0.052
30	0.076	0.075
	48°	49°
5	0.002	0.002
10	0.008	0.008
15	0.019	0.019
20	0.033	0.033
25	0.052	0.052
30	0.075	0.075
	49°	50°
5	0.002	0.002
10	0.008	0.008
15	0.019	0.019
20	0.033	0.033
25	0.052	0.052
30	0.075	0.075

TABLE IX.—*Co-ordinates for projection of maps. Scale* $\frac{1}{62500}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Meridional distances from even degree parallels.	Abscissas of developed parallel.						Ordinates of developed parallel.		
		2½′ longitude.	5′ longitude.	7½′ longitude.	10′ longitude.	12½′ longitude.	15′ longitude.			
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	Longitude interval.	25°	26°
25 00	----------	2.650	5.299	7.949	10.599	13.248	15.898			
05	5.815	2.648	5.296	7.944	10.591	13.239	15.887			
10	11.629	2.646	5.292	7.938	10.584	13.230	15.876			
15	17.444	2.644	5.288	7.933	10.577	13.221	15.865	′	*Inches.*	*Inches.*
20	23.259	2.642	5.285	7.927	10.569	13.212	15.854	2½	0.000	0.000
25	29.074	2.641	5.281	7.922	10.562	13.203	15.843	5	.002	.002
30	34.888	2.639	5.277	7.916	10.555	13.194	15.832	7½	.004	.004
35	----------	2.637	5.274	7.911	10.548	13.184	15.821	10	.007	.007
40	----------	2.635	5.270	7.905	10.540	13.175	15.810	12½	.010	.010
45	----------	2.633	5.266	7.900	10.533	13.166	15.799	15	.015	.015
50	----------	2.631	5.263	7.894	10.526	13.157	15.788			
55	----------	2.630	5.259	7.889	10.518	13.148	15.777			
26 00	----------	2.628	5.256	7.883	10.511	13.139	15.766			
05	5.816	2.626	5.252	7.878	10.504	13.129	15.755		27°	
10	11.631	2.624	5.248	7.872	10.496	13.120	15.744			
15	17.447	2.622	5.244	7.866	10.489	13.111	15.733	′	*Inches.*	
20	23.262	2.620	5.241	7.861	10.481	13.101	15.721	2½	0.000	
25	29.078	2.618	5.237	7.855	10.473	13.092	15.710	5	.002	
30	34.893	2.617	5.233	7.849	10.466	13.082	15.699	7½	.004	
35	----------	2.615	5.229	7.844	10.458	13.073	15.688	10	.007	
40	----------	2.613	5.225	7.838	10.451	13.064	15.676	12½	.011	
45	----------	2.611	5.222	7.833	10.443	13.054	15.665	15	.015	
50	----------	2.609	5.218	7.827	10.436	13.045	15.654			
55	----------	2.607	5.214	7.821	10.428	13.035	15.642			
27 00	----------	2.605	5.210	7.816	10.421	13.026	15.631			
05	5.816	2.603	5.207	7.810	10.413	13.016	15.620			
10	11.633	2.601	5.203	7.804	10.405	13.006	15.608		27°	28°
15	17.449	2.599	5.199	7.798	10.397	12.997	15.596			
20	23.265	2.597	5.195	7.792	10.389	12.987	15.584			
25	29.082	2.595	5.191	7.786	10.382	12.977	15.572	′	*Inches.*	*Inches.*
30	34.898	2.593	5.187	7.780	10.374	12.967	15.561	2½	0.000	0.000
35	----------	2.591	5.183	7.774	10.366	12.957	15.549	5	.002	.002
40	----------	2.590	5.179	7.769	10.358	12.948	15.537	7½	.004	.004
45	----------	2.588	5.175	7.763	10.350	12.938	15.525	10	.007	.007
50	----------	2.586	5.171	7.757	10.342	12.928	15.514	12½	.011	.011
55	----------	2.584	5.167	7.751	10.335	12.918	15.502	15	.015	.016
28 00	----------	2.582	5.163	7.745	10.327	12.908	15.490			
05	5.817	2.580	5.159	7.739	10.319	12.898	15.478			
10	11.634	2.578	5.155	7.733	10.311	12.888	15.466			
15	17.451	2.576	5.151	7.727	10.303	12.878	15.454		29°	
20	23.268	2.574	5.147	7.721	10.294	12.868	15.442			
25	29.085	2.572	5.143	7.715	10.286	12.858	15.430			
30	34.903	2.570	5.139	7.709	10.278	12.848	15.418	′	*Inches.*	
35	----------	2.568	5.135	7.703	10.270	12.838	15.405	2½	0.000	
40	----------	2.566	5.131	7.697	10.262	12.828	15.393	5	.002	
45	----------	2.564	5.127	7.691	10.254	12.818	15.381	7½	.004	
50	----------	2.562	5.123	7.685	10.246	12.808	15.369	10	.007	
55	----------	2.560	5.119	7.679	10.238	12.798	15.357	12½	.011	
								15	.016	
29 00	----------	2.558	5.115	7.673	10.230	12.788	15.345			

TABLE IX.—*Co-ordinates for projection of maps. Scale* $\frac{1}{62500}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.		Meridional distances from even degree parallels.	Abscissas of developed parallel.						Ordinates of developed parallel.		
			2½′ longitude.	5′ longitude.	7½′ longitude.	10′ longitude.	12½′ longitude.	15′ longitude.	Longitude interval.	29°	30°
°	′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*	*Inches.*
29	00	----------	2.558	5.115	7.673	10.230	12.788	15.345	2½	0.000	0.000
	05	5.818	2.555	5.111	7.666	10.222	12.777	15.333	5	.002	.002
	10	11.636	2.553	5.107	7.660	10.213	12.767	15.320	7½	.004	.004
	15	17.454	2.551	5.103	7.654	10.205	12.756	15.308	10	.007	.007
	20	23.272	2.549	5.098	7.648	10.197	12.746	15.295	12½	.011	.012
	25	29.090	2.547	5.094	7.641	10.188	12.735	15.283	15	.016	.017
	30	34.908	2.545	5.090	7.635	10.180	12.725	15.270		31°	
	35	----------	2.543	5.086	7.629	10.172	12.715	15.258			
	40	----------	2.541	5.082	7.623	10.164	12.704	15.245			
	45	----------	2.539	5.078	7.616	10.155	12.694	15.233			
	50	----------	2.537	5.073	7.610	10.147	12.684	15.220			
	55	----------	2.535	5.069	7.604	10.138	12.673	15.208			
30	00	----------	2.533	5.065	7.598	10.130	12.663	15.195	2½	0.000	
	05	5.819	2.530	5.061	7.591	10.122	12.652	15.182	5	.002	
	10	11.638	2.528	5.057	7.585	10.113	12.641	15.169	7½	.004	
	15	17.457	2.526	5.052	7.578	10.104	12.630	15.157	10	.008	
	20	23.276	2.524	5.048	7.572	10.096	12.620	15.144	12½	.012	
	25	29.095	2.522	5.044	7.565	10.087	12.609	15.131	15	.017	
	30	34.913	2.520	5.039	7.559	10.079	12.598	15.118			
	35	----------	2.518	5.035	7.552	10.070	12.587	15.105			
	40	----------	2.515	5.031	7.546	10.061	12.577	15.092			
	45	----------	2.513	5.026	7.540	10.053	12.566	15.079			
	50	----------	2.511	5.022	7.533	10.044	12.555	15.066			
	55	----------	2.509	5.018	7.527	10.036	12.544	15.053			
31	00	----------	2.507	5.014	7.520	10.027	12.534	15.040			
	05	5.820	2.505	5.009	7.514	10.018	12.523	15.027			
	10	11.640	2.502	5.005	7.507	10.009	12.512	15.014			
	15	17.460	2.500	5.000	7.500	10.000	12.500	15.000			
	20	23.280	2.498	4.996	7.494	9.992	12.489	14.987			
	25	29.100	2.496	4.991	7.487	9.983	12.478	14.974			
	30	34.919	2.494	4.987	7.480	9.974	12.467	14.961			
	35	----------	2.491	4.983	7.474	9.965	12.456	14.948			
	40	----------	2.489	4.978	7.467	9.956	12.445	14.934			
	45	----------	2.487	4.974	7.460	9.947	12.434	14.921			
	50	----------	2.485	4.969	7.454	9.938	12.423	14.908			
	55	----------	2.482	4.965	7.447	9.930	12.412	14.894	Longitude interval.	31°	32°
32	00	----------	2.480	4.960	7.441	9.921	12.401	14.881	′	*Inches.*	*Inches.*
	05	5.821	2.478	4.956	7.434	9.912	12.390	14.868	2½	0.000	0.000
	10	11.642	2.476	4.951	7.427	9.903	12.378	14.854	5	.002	.002
	15	17.462	2.473	4.947	7.420	9.894	12.367	14.840	7½	.004	.004
	20	23.283	2.471	4.942	7.413	9.884	12.356	14.827	10	.008	.008
	25	29.104	2.469	4.938	7.407	9.875	12.344	14.813	12½	.012	.012
	30	34.925	2.467	4.933	7.400	9.866	12.333	14.800	15	.017	.017
	35	----------	2.464	4.929	7.393	9.857	12.322	14.786			
	40	----------	2.462	4.924	7.386	9.848	12.310	14.772		33°	
	45	----------	2.460	4.920	7.379	9.839	12.299	14.759			
	50	----------	2.458	4.915	7.372	9.831	12.287	14.745			
	55	----------	2.455	4.910	7.366	9.821	12.276	14.731			
33	00	----------	2.453	4.906	7.359	9.812	12.265	14.718			

TABLE IX.—*Co-ordinates for projection of maps. Scale* $\frac{1}{63360}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel		Meridional distances from even degree parallels.	Abscissas of developed parallel.						Ordinates of developed parallel.		
			2½′ longitude.	5′ longitude.	7½′ longitude.	10′ longitude.	12½′ longitude.	15 longitude.			
°	′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	Longitude interval.	33°	34°
33	00		2.453	4.906	7.359	9.812	12.265	14.718			
	05	5.822	2.451	4.901	7.352	9.802	12.253	14.704			
	10	11.643	2.448	4.897	7.345	9.793	12.241	14.690			
	15	17.465	2.446	4.892	7.338	9.784	12.230	14.676			
	20	23.287	2.444	4.887	7.331	9.774	12.218	14.662	′	*Inches.*	*Inches.*
	25	29.109	2.441	4.882	7.324	9.765	12.206	14.648	2½	0.000	0.000
	30	34.930	2.439	4.878	7.317	9.756	12.195	14.633	5	.002	.002
	35		2.437	4.873	7.310	9.746	12.183	14.619	7½	.004	.004
	40		2.434	4.868	7.303	9.737	12.171	14.605	10	.008	.008
	45		2.432	4.864	7.296	9.728	12.160	14.591	12½	.012	.012
	50		2.430	4.859	7.289	9.718	12.148	14.577	15	.017	.018
	55		2.427	4.854	7.282	9.709	12.136	14.563			
										35°	
34	00		2.425	4.850	7.275	9.700	12.124	14.549	2½	0.000	
	05	5.823	2.423	4.845	7.267	9.690	12.112	14.535	5	.002	
	10	11.645	2.420	4.840	7.260	9.680	12.100	14.520	7½	.004	
	15	17.468	2.418	4.835	7.253	9.671	12.088	14.506	10	.008	
	20	23.291	2.415	4.831	7.246	9.661	12.076	14.492	12½	.012	
	25	29.113	2.413	4.826	7.239	9.652	12.064	14.477	15	.018	
	30	34.936	2.411	4.821	7.231	9.642	12.052	14.463			
	35		2.408	4.816	7.224	9.632	12.040	14.448			
	40		2.406	4.811	7.217	9.623	12.028	14.434			
	45		2.403	4.807	7.210	9.613	12.016	14.420			
	50		2.401	4.802	7.203	9.604	12.004	14.405			
	55		2.399	4.797	7.195	9.594	11.992	14.391			
35	00		2.396	4.792	7.188	9.584	11.980	14.376			
	05	5.824	2.394	4.787	7.181	9.574	11.968	14.362			
	10	11.647	2.391	4.782	7.174	9.565	11.956	14.347			
	15	17.471	2.389	4.777	7.166	9.555	11.944	14.332			
	20	23.294	2.386	4.773	7.159	9.545	11.931	14.318			
	25	29.118	2.384	4.768	7.151	9.535	11.919	14.303	Longitude interval.	35°	36°
	30	34.942	2.381	4.763	7.144	9.525	11.907	14.288			
	35		2.379	4.758	7.137	9.516	11.895	14.273	′	*Inches.*	*Inches.*
	40		2.376	4.753	7.129	9.506	11.882	14.259	2½	0.000	0.001
	45		2.374	4.748	7.122	9.496	11.870	14.244	5	.002	.002
	50		2.372	4.743	7.115	9.486	11.858	14.229	7½	.004	.005
	55		2.369	4.738	7.107	9.476	11.845	14.214	10	.008	.008
36	00		2.367	4.733	7.100	9.466	11.833	14.200	12½	.012	.013
	05	5.824	2.364	4.728	7.092	9.456	11.820	14.185	15	.018	.018
	10	11.649	2.362	4.723	7.085	9.446	11.808	14.169			
	15	17.473	2.359	4.718	7.077	9.436	11.795	14.154			
	20	23.297	2.357	4.713	7.070	9.426	11.783	14.139			
	25	29.122	2.354	4.708	7.062	9.416	11.770	14.124			
	30	34.946	2.352	4.703	7.055	9.406	11.758	14.109		37°	
	35		2.349	4.698	7.047	9.396	11.745	14.094	2½	0.001	
	40		2.346	4.693	7.039	9.386	11.732	14.079	5	.002	
	45		2.344	4.688	7.032	9.376	11.720	14.064	7½	.005	
	50		2.341	4.683	7.024	9.366	11.707	14.048	10	.008	
	55		2.339	4.678	7.017	9.356	11.694	14.033	12½	.013	
									15	.018	
37	00		2.336	4.673	7.009	9.345	11.682	14.018			

TABLE IX.—*Co-ordinates for projection of maps. Scale* $\frac{1}{62500}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.		Meridional distances from even degree parallels.	Abscissas of developed parallel.						Ordinates of developed parallel.		
			2½′ longitude.	5′ longitude.	7½′ longitude.	10′ longitude.	12½′ longitude.	15′ longitude.			
°	′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	Longitude interval.	37°	38°
37	00	----------	2.336	4.673	7.009	9.345	11.682	14.018			
	05	5.826	2.334	4.667	7.001	9.335	11.669	14.003	′	*Inches.*	*Inches.*
	10	11.651	2.331	4.662	6.994	9.325	11.656	13.987	2½	0.001	0.001
	15	17.477	2.329	4.657	6.986	9.314	11.643	13.972	5	.002	.002
	20	23.302	2.326	4.652	6.978	9.304	11.630	13.956	7½	.005	.005
	25	29.128	2.323	4.647	6.970	9.294	11.617	13.941	10	.008	.008
	30	34.954	2.321	4.642	6.963	9.283	11.604	13.925	12½	.013	.013
	35	----------	2.318	4.637	6.955	9.273	11.591	13.910	15	.018	.019
	40	----------	2.316	4.631	6.947	9.263	11.578	13.894			
	45	----------	2.313	4.626	6.939	9.253	11.566	13.879			
	50	----------	2.311	4.621	6.932	9.242	11.553	13.863			
	55	----------	2.308	4.616	6.924	9.232	11.540	13.848			
										39°	
38	00	----------	2.305	4.611	6.916	9.222	11.527	13.832			
	05	5.827	2.303	4.606	6.908	9.211	11.514	13.817	′	*Inches.*	
	10	11.653	2.300	4.600	6.900	9.201	11.501	13.801	2½	0.001	
	15	17.480	2.298	4.595	6.892	9.190	11.488	13.785	5	.002	
	20	23.306	2.295	4.590	6.885	9.179	11.474	13.769	7½	.005	
	25	29.133	2.292	4.584	6.877	9.169	11.461	13.753	10	.008	
	30	34.960	2.290	4.579	6.869	9.158	11.448	13.737	12½	.013	
	35	----------	2.287	4.574	6.861	9.148	11.435	13.722	15	.019	
	40	----------	2.284	4.569	6.853	9.137	11.422	13.706			
	45	----------	2.282	4.563	6.845	9.127	11.408	13.690			
	50	----------	2.279	4.558	6.837	9.116	11.395	13.674			
	55	----------	2.276	4.553	6.829	9.106	11.382	13.658			
39	00	----------	2.274	4.547	6.821	9.095	11.369	13.642			
	05	5.828	2.271	4.542	6.813	9.084	11.355	13.626			
	10	11.655	2.268	4.537	6.805	9.073	11.342	13.610			
	15	17.483	2.266	4.531	6.797	9.063	11.328	13.594	Longitude interval.	39°	40°
	20	23.310	2.263	4.526	6.789	9.052	11.315	13.578			
	25	29.138	2.260	4.521	6.781	9.041	11.301	13.562	′	*Inches.*	*Inches.*
	30	34.966	2.258	4.515	6.773	9.030	11.288	13.545	2½	0.001	0.001
	35	----------	2.255	4.510	6.765	9.020	11.274	13.529	5	.002	.002
	40	----------	2.252	4.504	6.757	9.009	11.261	13.513	7½	.005	.005
	45	----------	2.250	4.499	6.748	8.998	11.247	13.497	10	.008	.008
	50	----------	2.247	4.494	6.740	8.987	11.234	13.481	12½	.013	.013
	55	----------	2.244	4.488	6.732	8.976	11.221	13.465	15	.019	.019
40	00	----------	2.241	4.483	6.724	8.966	11.207	13.448			
	05	5.829	2.239	4.477	6.716	8.955	11.193	13.432			
	10	11.657	2.236	4.472	6.708	8.944	11.180	13.415			
	15	17.486	2.233	4.466	6.699	8.933	11.166	13.399			
	20	23.314	2.230	4.461	6.691	8.922	11.152	13.382			
	25	29.143	2.228	4.455	6.683	8.911	11.138	13.366		41°	
	30	34.972	2.225	4.450	6.675	8.899	11.124	13.349			
	35	----------	2.222	4.444	6.666	8.888	11.111	13.333	′	*Inches.*	
	40	----------	2.219	4.439	6.658	8.877	11.097	13.316	2½	0.001	
	45	----------	2.217	4.433	6.650	8.866	11.083	13.300	5	.002	
	50	----------	2.214	4.428	6.642	8.855	11.069	13.283	7½	.005	
	55	----------	2.211	4.422	6.633	8.844	11.056	13.267	10	.008	
									12½	.013	
41	00	----------	2.208	4.417	6.625	8.833	11.042	13.250	15	.019	

TABLE IX.—*Co-ordinates for projection of maps. Scale* $\frac{1}{62500}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.		Meridional distances from even degree parallels.	Abscissas of developed parallel.						Ordinates of developed parallel.		
			2½′ longitude.	5′ longitude.	7½′ longitude.	10′ longitude.	12½′ longitude.	15′ longitude.	Longitude interval.	41°	42°
°	′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*	*Inches.*
41	00	----------	2.208	4.417	6.625	8.833	11.042	13.250	2½	0.001	0.001
	05	5.830	2.206	4.411	6.617	8.822	11.028	13.233	5	.002	.002
	10	11.659	2.203	4.406	6.608	8.811	11.014	13.216	7½	.005	.005
	15	17.489	2.200	4.400	6.600	8.800	11.000	13.200	10	.008	.008
	20	23.319	2.197	4.394	6.591	8.789	10.986	13.183	12½	.013	.013
	25	29.149	2.194	4.389	6.583	8.777	10.972	13.166	15	.019	.019
	30	34.978	2.192	4.383	6.575	8.766	10.958	13.149		43°	
	35	----------	2.189	4.377	6.566	8.755	10.944	13.132			
	40	----------	2.186	4.372	6.558	8.744	10.930	13.115	2½	0.001	
	45	----------	2.183	4.366	6.549	8.732	10.916	13.099	5	.002	
	50	----------	2.180	4.361	6.541	8.721	10.902	13.082	7½	.005	
	55	----------	2.178	4.355	6.533	8.710	10.888	13.065	10	.008	
42	00	----------	2.175	4.349	6.524	8.699	10.873	13.048	12½	.013	
	05	5.831	2.172	4.344	6.515	8.687	10.859	13.031	15	.019	
	10	11.661	2.169	4.338	6.507	8.676	10.845	13.014			
	15	17.492	2.166	4.332	6.498	8.664	10.830	12.996			
	20	23.323	2.163	4.326	6.490	8.653	10.816	12.979			
	25	29.154	2.160	4.321	6.481	8.641	10.802	12.962			
	30	34.984	2.158	4.315	6.472	8.630	10.787	12.945			
	35	----------	2.155	4.309	6.464	8.618	10.773	12.928			
	40	----------	2.152	4.304	6.455	8.607	10.759	12.910			
	45	----------	2.149	4.298	6.447	8.596	10.744	12.893			
	50	----------	2.146	4.292	6.438	8.584	10.730	12.876			
	55	----------	2.143	4.286	6.429	8.573	10.716	12.859			
43	00	----------	2.140	4.281	6.421	8.561	10.701	12.842			
	05	5.832	2.137	4.275	6.412	8.550	10.687	12.824			
	10	11.663	2.134	4.269	6.403	8.538	10.672	12.807			
	15	17.495	2.132	4.263	6.395	8.526	10.658	12.789			
	20	23.327	2.129	4.257	6.386	8.514	10.643	12.772			
	25	29.159	2.126	4.251	6.377	8.503	10.628	12.754			
	30	34.990	2.123	4.246	6.368	8.491	10.614	12.736			
	35	----------	2.120	4.240	6.359	8.479	10.599	12.719			
	40	----------	2.117	4.234	6.351	8.468	10.585	12.701			
	45	----------	2.114	4.228	6.342	8.456	10.570	12.684			
	50	----------	2.111	4.222	6.333	8.444	10.555	12.666			
	55	----------	2.108	4.216	6.324	8.432	10.541	12.649			
44	00	----------	2.105	4.210	6.316	8.421	10.526	12.631			
	05	5.833	2.102	4.205	6.307	8.409	10.511	12.613			
	10	11.666	2.099	4.199	6.298	8.397	10.496	12.596			
	15	17.498	2.096	4.193	6.289	8.385	10.482	12.578			
	20	23.331	2.093	4.187	6.280	8.373	10.467	12.560			
	25	29.164	2.090	4.181	6.271	8.361	10.452	12.542			
	30	34.997	2.087	4.175	6.262	8.350	10.437	12.524			
	35	----------	2.084	4.169	6.253	8.338	10.422	12.506			
	40	----------	2.081	4.163	6.244	8.326	10.407	12.489			
	45	----------	2.078	4.157	6.235	8.314	10.392	12.471			
	50	----------	2.076	4.151	6.227	8.302	10.377	12.453			
	55	----------	2.073	4.145	6.218	8.290	10.363	12.435			
45	00	----------	2.070	4.139	6.209	8.278	10.348	12.417			

Longitude interval.	43°	44°
′	*Inches.*	*Inches.*
2½	0.001	0.001
5	.002	.002
7½	.005	.005
10	.008	.009
12½	.013	.013
15	.019	.019

	45°	
′	*Inches.*	
2½	0.001	
5	.002	
7½	.005	
10	.009	
12½	.013	
15	.019	

TABLE IX.—*Co-ordinates for projection of maps. Scale* $\frac{1}{62500}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.		Meridional distances from even degree parallels.	Abscissas of developed parallel.						Ordinates of developed parallel.		
			2½′ longitude.	5′ longitude.	7½′ longitude.	10′ longitude.	12½′ longitude.	15′ longitude.	Longitude interval.	45°	46°
°	′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*	*Inches.*
45	00		2.070	4.139	6.209	8.278	10.348	12.417	2½	0.001	0.001
	05	5.834	2.067	4.133	6.200	8.266	10.333	12.399	5	.002	.002
	10	11.668	2.064	4.127	6.191	8.254	10.318	12.381	7½	.005	.005
	15	17.501	2.061	4.121	6.181	8.242	10.302	12.363	10	.009	.009
	20	23.335	2.058	4.115	6.172	8.230	10.287	12.345	12½	.013	.013
	25	29.169	2.054	4.109	6.163	8.218	10.272	12.327	15	.019	.019
	30	35.003	2.051	4.103	6.154	8.206	10.257	12.308			
	35		2.048	4.097	6.145	8.194	10.242	12.290		47°	
	40		2.045	4.091	6.136	8.181	10.227	12.272	′	*Inches.*	
	45		2.042	4.085	6.127	8.169	10.212	12.254	2½	0.001	
	50		2.039	4.079	6.118	8.157	10.197	12.236	5	.002	
	55		2.036	4.073	6.109	8.145	10.182	12.218	7½	.005	
46	00		2.033	4.067	6.100	8.133	10.166	12.200	10	.008	
	05	5.835	2.030	4.060	6.091	8.121	10.151	12.181	12½	.013	
	10	11.670	2.027	4.054	6.081	8.108	10.136	12.163	15	.019	
	15	17.504	2.024	4.048	6.072	8.096	10.120	12.144			
	20	23.339	2.021	4.042	6.063	8.084	10.105	12.126			
	25	29.174	2.018	4.036	6.054	8.072	10.090	12.107			
	30	35.009	2.015	4.030	6.044	8.059	10.074	12.089			
	35		2.012	4.023	6.035	8.047	10.059	12.070			
	40		2.009	4.017	6.026	8.035	10.043	12.052			
	45		2.006	4.011	6.017	8.022	10.028	12.033			
	50		2.003	4.005	6.008	8.010	10.013	12.015			
	55		1.999	3.999	5.998	7.998	9.997	11.996			
47	00		1.996	3.993	5.989	7.985	9.982	11.978			
	05	5.836	1.993	3.986	5.980	7.973	9.966	11.959			
	10	11.672	1.990	3.980	5.970	7.960	9.950	11.940			
	15	17.508	1.987	3.974	5.961	7.948	9.935	11.922			
	20	23.344	1.984	3.968	5.951	7.935	9.919	11.903			
	25	29.180	1.981	3.961	5.942	7.923	9.903	11.884			
	30	35.015	1.977	3.955	5.933	7.910	9.888	11.865			
	35		1.974	3.949	5.923	7.898	9.872	11.846			
	40		1.971	3.943	5.914	7.885	9.856	11.828			
	45		1.968	3.936	5.904	7.872	9.841	11.809			
	50		1.965	3.930	5.895	7.860	9.825	11.790			
	55		1.962	3.924	5.886	7.848	9.809	11.771			
48	00		1.959	3.917	5.876	7.835	9.794	11.752			
	05	5.837	1.956	3.911	5.867	7.822	9.778	11.733			
	10	11.674	1.952	3.905	5.857	7.810	9.763	11.714			
	15	17.511	1.949	3.898	5.848	7.797	9.746	11.695			
	20	23.348	1.946	3.892	5.838	7.784	9.730	11.676			
	25	29.185	1.943	3.886	5.829	7.771	9.714	11.657			
	30	35.021	1.940	3.879	5.819	7.759	9.698	11.638			
	35		1.937	3.873	5.810	7.746	9.683	11.619			
	40		1.933	3.867	5.800	7.733	9.667	11.600			
	45		1.930	3.860	5.790	7.721	9.651	11.581			
	50		1.927	3.854	5.781	7.708	9.635	11.562			
	55		1.924	3.848	5.771	7.695	9.619	11.543			
49	00		1.921	3.841	5.762	7.682	9.603	11.524			
	05	5.838	1.917	3.835	5.752	7.670	9.587	11.504			
	10	11.676	1.914	3.828	5.742	7.657	9.571	11.485			
	15	17.514	1.911	3.822	5.733	7.644	9.555	11.466			
	20	23.352	1.908	3.815	5.723	7.631	9.538	11.446			
	25	29.190	1.905	3.809	5.713	7.618	9.522	11.427			
	30	35.027	1.901	3.802	5.704	7.605	9.506	11.407			
	35		1.898	3.796	5.694	7.592	9.490	11.388			
	40		1.895	3.790	5.684	7.579	9.474	11.369			
	45		1.892	3.783	5.675	7.566	9.458	11.349			
	50		1.888	3.777	5.665	7.553	9.442	11.330			
	55		1.885	3.770	5.655	7.540	9.426	11.311			
50	00		1.882	3.764	5.646	7.528	9.409	11.291			

Longitude interval.	47°	48°
′	*Inches.*	*Inches.*
2½	0.001	0.001
5	.002	.002
7½	.005	.005
10	.008	.008
12½	.013	.013
15	.019	.019

	49°
′	*Inches.*
2½	0.001
5	.002
7½	.005
10	.008
12½	.013
15	.019

	49°	50°
′	*Inches.*	*Inches.*
2½	0.001	0.001
5	.002	.002
7½	.005	.005
10	.008	.008
12½	.013	.013
15	.019	.019

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
25 00	2.091	4.182	6.273	8.364	10.455	12.546	14.637	16.728	18.819	20.910	1	0.000
1	.091	.182	.272	.363	.454	.544	.635	.726	.817	.907	2	.000
2	.091	.181	.271	.362	.452	.542	.633	.724	.814	.904	3	.001
3	.091	.181	.270	.361	.451	.541	.631	.721	.812	.900	4	.002
4	.090	.180	.269	.360	.449	.539	.629	.719	.809	.897	5	.003
5	.090	.180	.268	.358	.448	.537	.627	.717	.807	.894	6	.005
											7	.006
6	.090	.179	.267	.356	.446	.535	.625	.714	.804	.890	8	.008
7	.089	.179	.267	.355	.445	.534	.623	.712	.802	.887	9	.010
8	.089	.178	.266	.354	.444	.532	.621	.709	.799	.885	10	.013
9	.089	.177	.265	.353	.442	.530	.619	.707	.796	.883		
10	2.088	4.176	6.264	8.352	10.441	12.529	14.617	16.705	18.793	20.881		
11	.088	.176	.263	.351	.440	.527	.615	.703	.791	.878		
12	.088	.175	.263	.350	.438	.525	.613	.701	.788	.875		
13	.087	.175	.262	.349	.437	.523	.611	.698	.786	.872		
14	.087	.174	.261	.348	.435	.522	.609	.696	.783	.869		
15	.087	.174	.260	.347	.434	.520	.607	.694	.781	.866		
16	.086	.173	.259	.346	.432	.518	.605	.691	.778	.864		
17	.086	.173	.259	.344	.431	.516	.603	.689	.776	.861		
18	.086	.172	.258	.343	.430	.515	.601	.687	.773	.858		
19	.085	.171	.257	.342	.428	.513	.598	.684	.770	.855		
20	2.085	4.170	6.256	8.341	10.426	12.511	14.596	16.682	18.767	20.852		
21	.085	.170	.255	.340	.424	.509	.594	.680	.765	.849		
22	.085	.169	.254	.339	.423	.507	.592	.678	.762	.846		
23	.084	.169	.253	.338	.422	.506	.590	.675	.759	.843		
24	.084	.168	.252	.337	.420	.504	.588	.673	.757	.841		
25	.084	.168	.251	.336	.418	.502	.587	.671	.755	.838		
26	.083	.167	.250	.335	.417	.501	.585	.668	.752	.835		
27	.083	.167	.249	.334	.415	.499	.583	.666	.749	.832		
28	.083	.166	.248	.332	.414	.497	.581	.664	.747	.829		
29	.083	.166	.248	.331	.413	.495	.579	.662	.745	.827		
30	2.082	4.165	6.247	8.330	10.412	12.494	14.577	16.659	18.742	20.824		
31	.082	.165	.246	.329	.410	.492	.575	.657	.739	.821		
32	.082	.164	.245	.328	.409	.490	.573	.655	.736	.818		
33	.081	.164	.244	.326	.407	.489	.571	.652	.734	.815		
34	.081	.163	.243	.325	.406	.487	.569	.650	.731	.812		
35	.081	.163	.242	.324	.404	.485	.566	.648	.728	.810		
36	.081	.162	.242	.323	.403	.484	.564	.645	.726	.807		
37	.080	.162	.241	.322	.401	.482	.562	.643	.723	.804		
38	.080	.161	.240	.320	.400	.480	.560	.641	.721	.801		
39	.080	.160	.239	.319	.399	.479	.558	.638	.718	.798		
40	2.079	4.159	6.238	8.318	10.397	12.477	14.556	16.636	18.715	20.795		
41	.079	.159	.237	.317	.395	.476	.554	.634	.712	.792		
42	.079	.158	.237	.316	.394	.474	.552	.632	.710	.789		
43	.079	.157	.236	.315	.392	.472	.550	.629	.707	.786		
44	.078	.157	.235	.313	.390	.471	.548	.627	.704	.784		
45	.078	.156	.234	.312	.389	.469	.546	.625	.702	.781		
46	.078	.156	.233	.311	.387	.467	.544	.622	.699	.778		
47	.078	.155	.232	.310	.386	.466	.542	.620	.697	.775		
48	.077	.154	.232	.308	.385	.464	.540	.618	.694	.772		
49	.077	.154	.231	.307	.384	.462	.538	.615	.692	.769		
50	2.077	4.153	6.230	8.306	10.383	12.460	14.536	16.613	18.689	20.766		
51	.076	.153	.229	.305	.382	.458	.534	.611	.686	.763		
52	.076	.152	.228	.304	.380	.457	.532	.609	.684	.760		
53	.076	.152	.227	.303	.379	.455	.530	.606	.681	.758		
54	.076	.151	.226	.302	.378	.453	.528	.604	.679	.755		
55	.075	.151	.225	.301	.377	.452	.527	.602	.676	.752		
56	.075	.150	.225	.299	.375	.450	.525	.599	.674	.749		
57	.075	.150	.224	.298	.373	.448	.523	.597	.671	.747		
58	.074	.149	.223	.297	.372	.447	.521	.595	.669	.744		
59	.074	.149	.222	.296	.370	.445	.519	.593	.667	.741		
60	2.074	4.148	6.221	8.295	10.369	12.443	14.517	16.590	18.664	20.738		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.294
2	4.589
3	6.883
4	9.178
5	11.472
6	13.766
7	16.061
8	18.355
9	20.650
10	22.944

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
26 00	2.074	4.148	6.221	8.295	10.369	12.443	14.517	16.590	18.664	20.738	1	0.000
1	.074	.148	.220	.294	.368	.441	.515	.588	.661	.735	2	.000
2	.074	.147	.219	.292	.366	.439	.513	.585	.658	.732	3	.001
3	.073	.147	.218	.291	.365	.438	.511	.583	.656	.729	4	.002
4	.073	.146	.217	.290	.363	.436	.509	.581	.653	.726	5	.003
5	.073	.146	.216	.289	.362	.434	.506	.578	.650	.723	6	.005
											7	.006
6	.073	.145	.215	.288	.360	.432	.504	.576	.648	.720	8	.008
7	.072	.145	.214	.286	.359	.430	.502	.573	.645	.717	9	.011
8	.072	.144	.213	.285	.357	.429	.500	.571	.642	.714	10	.013
9	.072	.143	.213	.284	.355	.427	.498	.568	.640	.711		
10	2.071	4.142	6.212	8.283	10.354	12.425	14.496	16.566	18.637	20.708		
11	.071	.142	.211	.282	.352	.423	.494	.563	.634	.705		
12	.071	.141	.210	.280	.351	.421	.492	.560	.631	.702		
13	.070	.141	.209	.279	.349	.420	.490	.558	.629	.699		
14	.070	.140	.208	.278	.348	.418	.487	.555	.626	.696		
15	.070	.139	.207	.277	.346	.416	.485	.553	.623	.693		
16	.069	.139	.206	.275	.345	.415	.483	.551	.621	.690		
17	.069	.138	.205	.274	.343	.413	.481	.549	.618	.687		
18	.069	.138	.204	.273	.342	.411	.479	.546	.615	.684		
19	.068	.137	.203	.272	.340	.409	.477	.544	.612	.681		
20	2.068	4.136	6.203	8.271	10.339	12.407	14.475	16.542	18.610	20.678		
21	.068	.136	.202	.270	.337	.405	.473	.540	.607	.675		
22	.068	.135	.201	.268	.336	.403	.471	.537	.604	.672		
23	.067	.135	.200	.267	.335	.402	.469	.535	.602	.669		
24	.067	.134	.199	.266	.333	.400	.466	.532	.599	.666		
25	.067	.133	.199	.265	.332	.398	.464	.530	.596	.663		
26	.066	.132	.198	.264	.330	.397	.462	.527	.593	.660		
27	.066	.132	.197	.263	.329	.395	.460	.525	.591	.657		
28	.066	.131	.196	.262	.327	.393	.458	.522	.588	.654		
29	.065	.131	.195	.260	.326	.391	.456	.520	.585	.651		
30	2.065	4.130	6.194	8.259	10.324	12.389	14.454	16.518	18.583	20.648		
31	.065	.130	.193	.258	.323	.387	.452	.516	.580	.645		
32	.065	.129	.192	.257	.321	.385	.450	.513	.577	.642		
33	.064	.128	.191	.256	.320	.384	.448	.511	.575	.639		
34	.064	.128	.190	.254	.318	.382	.446	.509	.572	.636		
35	.064	.127	.189	.253	.317	.380	.443	.506	.569	.633		
36	.063	.127	.188	.252	.315	.379	.441	.504	.567	.630		
37	.063	.126	.187	.251	.314	.377	.439	.501	.564	.627		
38	.063	.126	.187	.250	.312	.375	.437	.499	.561	.624		
39	.062	.125	.186	.248	.311	.373	.435	.496	.559	.621		
40	2.062	4.124	6.185	8.247	10.309	12.371	14.433	16.494	18.556	20.618		
41	.062	.124	.184	.246	.308	.369	.431	.492	.553	.615		
42	.062	.123	.183	.245	.306	.367	.429	.489	.550	.612		
43	.061	.123	.182	.544	.305	.366	.427	.487	.548	.609		
44	.061	.122	.181	.242	.303	.364	.425	.484	.545	.606		
45	.061	.121	.180	.241	.302	.362	.423	.481	.542	.603		
46	.060	.120	.179	.240	.300	.360	.421	.479	.540	.600		
47	.060	.120	.178	.239	.299	.358	.418	.477	.537	.597		
48	.060	.119	.177	.238	.297	.357	.416	.475	.534	.594		
49	.059	.119	.177	.236	.296	.355	.414	.472	.532	.591		
50	2.059	4.118	6.176	8.235	10.294	12.353	14.412	16.470	18.529	20.588		
51	.059	.118	.175	.234	.293	.351	.410	.468	.526	.585		
52	.059	.117	.174	.233	.291	.349	.408	.466	.524	.582		
53	.058	.117	.173	.232	.290	.348	.406	.463	.521	.579		
54	.058	.116	.173	.231	.288	.346	.404	.461	.519	.576		
55	.058	.115	.172	.230	.287	.345	.402	.459	.516	.573		
56	.057	.115	.171	.229	.285	.343	.399	.457	.514	.570		
57	.057	.114	.170	.228	.284	.341	.397	.454	.511	.567		
58	.057	.113	.170	.227	.282	.339	.395	.452	.508	.564		
59	.056	.113	.168	.226	.281	.337	.393	.449	.506	.561		
60	2.056	4.112	6.168	8.224	10.280	12.335	14.391	16.447	18.503	20.559		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.295
2	4.590
3	6.884
4	9.179
5	11.474
6	13.769
7	16.064
8	18.358
9	20.653
10	22.948

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
											1	0.000
27 00	2.056	4.112	6.168	8.224	10.280	12.335	14.391	16.447	18.503	20.559	2	.000
1	.056	.112	.167	.223	.278	.333	.389	.445	.500	.556	3	.001
2	.056	.111	.166	.222	.277	.331	.387	.442	.497	.553	4	.002
3	.055	.111	.165	.220	.275	.330	.385	.440	.495	.550	5	.003
4	.055	.110	.164	.219	.274	.328	.383	.437	.492	.547	6	.005
5	.055	.109	.163	.218	.272	.326	.381	.435	.489	.544	7	.007
											8	.009
6	.054	.109	.162	.216	.271	.325	.379	.432	.487	.541	9	.011
7	.054	.108	.161	.215	.269	.323	.377	.430	.484	.538	10	.013
8	.054	.107	.160	.214	.267	.321	.375	.427	.481	.535		
9	.053	.107	.159	.213	.265	.319	.373	.425	.478	.532		
10	2.053	4.106	6.158	8.211	10.264	12.317	14.370	16.422	18.475	20.528		
11	.053	.106	.157	.210	.262	.315	.368	.420	.472	.525		
12	.053	.105	.156	.209	.261	.314	.366	.417	.469	.522		
13	.052	.104	.155	.207	.259	.312	.364	.415	.467	.519		
14	.052	.104	.154	.206	.258	.311	.362	.412	.464	.516		
15	.052	.103	.153	.205	.256	.309	.359	.410	.461	.513		
16	.051	.102	.152	.204	.255	.307	.357	.407	.458	.510		
17	.051	.101	.151	.202	.254	.305	.355	.405	.456	.507		
18	.051	.101	.150	.201	.252	.303	.353	.403	.453	.504		
19	.050	.100	.150	.200	.250	.300	.351	.400	.450	.501		
20	2.050	4.099	6.149	8.199	10.248	12.298	14.348	16.398	18.447	20.497		
21	.050	.099	.148	.198	.247	.296	.346	.395	.444	.494		
22	.050	.098	.147	.196	.245	.295	.344	.393	.442	.491		
23	.049	.098	.146	.195	.244	.293	.341	.390	.439	.488		
24	.049	.097	.145	.194	.242	.291	.339	.388	.436	.485		
25	.049	.096	.144	.192	.241	.289	.337	.385	.433	.482		
26	.048	.096	.143	.191	.239	.288	.335	.383	.430	.479		
27	.048	.095	.142	.189	.238	.286	.332	.380	.428	.476		
28	.048	.094	.141	.188	.236	.284	.330	.378	.425	.473		
29	.047	.094	.141	.187	.235	.282	.328	.375	.422	.469		
30	2.047	4.093	6.140	8.186	10.233	12.280	14.326	16.373	18.419	20.466		
31	.047	.093	.139	.185	.232	.278	.324	.370	.416	.463		
32	.046	.092	.138	.184	.230	.276	.322	.368	.413	.460		
33	.046	.091	.137	.182	.229	.274	.319	.365	.411	.457		
34	.046	.091	.136	.181	.228	.272	.317	.363	.408	.454		
35	.045	.090	.135	.180	.226	.271	.315	.360	.405	.451		
36	.045	.089	.134	.178	.225	.269	.313	.358	.402	.448		
37	.044	.089	.133	.177	.224	.267	.310	.355	.400	.445		
38	.044	.088	.132	.176	.222	.265	.308	.353	.397	.442		
39	.044	.088	.131	.175	.220	.263	.306	.350	.394	.438		
40	2.043	4.087	6.130	8.174	10.217	12.261	14.304	16.348	18.391	20.435		
41	.043	.087	.129	.173	.216	.259	.302	.345	.388	.432		
42	.043	.086	.128	.172	.214	.257	.300	.343	.386	.429		
43	.042	.085	.127	.170	.213	.256	.298	.340	.383	.426		
44	.042	.085	.126	.169	.211	.254	.296	.338	.380	.423		
45	.042	.084	.125	.168	.210	.252	.294	.335	.378	.420		
46	.041	.084	.124	.166	.208	.250	.292	.333	.375	.417		
47	.041	.083	.123	.165	.207	.248	.290	.330	.372	.414		
48	.041	.082	.122	.164	.205	.246	.287	.328	.369	.411		
49	.040	.082	.122	.163	.204	.244	.285	.325	.367	.407		
50	2.040	4.081	6.121	8.162	10.202	12.242	14.283	16.323	18.364	20.404		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.295
2	4.590
3	6.885
4	9.180
5	11.475
6	13.771
7	16.066
8	18.361
9	20.656
10	22.951

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
50	2.040	4.081	6.121	8.162	10.202	12.242	14.283	16.323	18.364	20.404		
51	.040	.081	.120	.161	.201	.240	.281	.320	.361	.401		
52	.040	.080	.119	.160	.199	.238	.279	.318	.359	.398		
53	.039	.079	.118	.158	.198	.237	.277	.315	.356	.395		
54	.039	.079	.117	.157	.196	.235	.275	.313	.354	.392		
55	.039	.078	.116	.156	.195	.233	.272	.311	.351	.389		
56	.038	.077	.115	.154	.193	.231	.270	.308	.348	.386		
57	.038	.077	.114	.153	.192	.230	.268	.306	.345	.383		
58	.038	.076	.113	.152	.190	.228	.266	.303	.342	.380		
59	.037	.075	.113	.151	.189	.226	.264	.301	.340	.377		
60	2.037	4.075	6.112	8.150	10.187	12.224	14.262	16.299	18.337	20.374		

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
											1	0.000
28 00	2.037	4.075	6.112	8.150	10.187	12.224	14.262	16.299	18.337	20.374	2	.000
1	.037	.074	.111	.149	.185	.222	.259	.297	.334	.371	3	.001
2	.037	.073	.110	.148	.184	.220	.257	.294	.331	.368	4	.002
3	.036	.073	.109	.146	.183	.218	.255	.292	.328	.366	5	.003
4	.036	.072	.108	.145	.181	.216	.252	.289	.325	.363	6	.005
5	.036	.071	.108	.144	.180	.214	.250	.287	.322	.360	7	.007
											8	.009
6	.035	.070	.107	.142	.178	.212	.247	.284	.319	.356	9	.011
7	.035	.070	.106	.141	.177	.210	.245	.282	.316	.352	10	.014
8	.035	.069	.105	.139	.175	.208	.243	.279	.313	.349		
9	.034	.068	.104	.138	.173	.206	.241	.277	.310	.346		
10	2.034	4.068	6.103	8.137	10.171	12.205	14.239	16.274	18.308	20.342		
11	.034	.067	.102	.136	.170	.203	.237	.272	.305	.339		
12	.034	.067	.101	.134	.168	.201	.234	.269	.302	.336		
13	.033	.066	.100	.133	.167	.199	.232	.267	.299	.332		
14	.033	.065	.099	.132	.165	.197	.230	.264	.296	.329		
15	.033	.065	.098	.130	.164	.195	.228	.262	.293	.326		
16	.032	.064	.097	.129	.162	.193	.225	.259	.290	.322		
17	.032	.064	.096	.128	.161	.191	.223	.257	.287	.319		
18	.032	.063	.095	.127	.159	.189	.221	.254	.284	.316		
19	.031	.063	.094	.125	.157	.187	.219	.251	.281	.313		
20	2.031	4.062	6.093	8.124	10.155	12.186	14.217	16.248	18.279	20.310		
21	.031	.062	.092	.123	.154	.184	.215	.246	.276	.307		
22	.031	.061	.091	.122	.152	.182	.212	.243	.273	.304		
23	.030	.061	.090	.120	.151	.180	.210	.241	.270	.300		
24	.030	.060	.089	.118	.149	.178	.208	.239	.267	.297		
25	.030	.060	.088	.117	.148	.176	.206	.236	.264	.294		
26	.029	.059	.087	.116	.146	.174	.203	.233	.261	.291		
27	.029	.058	.086	.115	.145	.172	.201	.230	.258	.287		
28	.029	.058	.085	.113	.143	.170	.199	.228	.255	.284		
29	.028	.057	.084	.112	.141	.168	.197	.225	.252	.281		
30	2.028	4.056	6.083	8.111	10.139	12.167	14.195	16.222	18.250	20.278		
31	.028	.056	.082	.110	.138	.165	.193	.220	.247	.275		
32	.028	.055	.081	.108	.136	.163	.190	.217	.244	.272		
33	.027	.054	.080	.107	.135	.161	.188	.215	.241	.269		
34	.027	.054	.079	.106	.133	.159	.186	.212	.238	.265		
35	.027	.053	.079	.104	.132	.157	.183	.210	.235	.262		
36	.026	.053	.078	.103	.130	.155	.181	.207	.232	.259		
37	.026	.052	.077	.102	.128	.153	.179	.205	.229	.256		
38	.026	.051	.076	.100	.127	.151	.176	.202	.226	.253		
39	.025	.050	.075	.099	.125	.149	.174	.199	.223	.249		
40	2.025	4.049	6.074	8.098	10.123	12.147	14.172	16.197	18.221	20.246		
41	.025	.049	.073	.097	.121	.145	.170	.194	.218	.243		
42	.025	.048	.072	.095	.120	.143	.168	.192	.215	.240		
43	.024	.048	.071	.094	.118	.141	.166	.189	.212	.236		
44	.024	.047	.070	.093	.117	.139	.164	.187	.209	.233		
45	.024	.046	.069	.092	.116	.137	.162	.184	.206	.230		
46	.023	.046	.068	.090	.114	.135	.159	.182	.203	.626	Latitude interval.	Meridional distances.
47	.023	.045	.067	.089	.113	.133	.157	.179	.200	.223		
48	.022	.044	.066	.088	.111	.131	.155	.176	.197	.220		
49	.022	.044	.065	.087	.109	.129	.153	.174	.195	.217		
50	2.021	4.043	6.064	8.086	10.107	12.128	14.150	16.171	18.193	20.214		
51	.021	.043	.063	.084	.106	.126	.148	.169	.190	.211	′	*Inches.*
52	.021	.042	.062	.083	.104	.125	.146	.166	.187	.208	1	2.295
53	.020	.042	.061	.082	.103	.123	.143	.164	.185	.205	2	4.591
54	.020	.041	.060	.080	.101	.121	.141	.161	.182	.202	3	6.886
55	.020	.040	.059	.079	.100	.119	.139	.159	.179	.199	4	9.182
											5	11.477
56	.019	.040	.058	.078	.098	.117	.137	.156	.176	.196	6	13.772
57	.019	.039	.058	.076	.097	.115	.134	.154	.173	.193	7	16.068
58	.019	.038	.057	.075	.095	.113	.132	.151	.170	.190	8	18.363
59	.018	.038	.056	.074	.093	.111	.130	.149	.167	.187	9	20.659
60	2.018	4.037	6.055	8.073	10.091	12.110	14.128	16.146	18.165	20.183	10	22.954

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
29 00	2.018	4.037	6.055	8.073	10.091	12.110	14.128	16.146	18.165	20.183	1	0.000
1	.018	.037	.054	.072	.090	.108	.126	.144	.162	.180	2	.001
2	.018	.036	.053	.071	.088	.106	.123	.141	.159	.177	3	.001
3	.017	.036	.052	.069	.087	.104	.121	.139	.156	.173	4	.002
4	.017	.035	.051	.068	.085	.102	.118	.136	.153	.170	5	.004
5	.017	.035	.050	.066	.084	.100	.115	.134	.150	.167	6	.005
											7	.007
6	.016	.034	.049	.065	.082	.098	.113	.131	.147	.164	8	.009
7	.016	.033	.048	.064	.081	.096	.110	.129	.144	.161	9	.011
8	.016	.032	.047	.062	.079	.094	.108	.126	.141	.157	10	.014
9	.015	.031	.046	.061	.077	.092	.106	.123	.138	.154		
10	2.015	4.030	6.045	8.060	10.075	12.090	14.105	16.120	18.135	20.150		
11	.015	.030	.044	.058	.074	.088	.103	.118	.132	.147		
12	.015	.029	.043	.057	.072	.086	.100	.115	.129	.144		
13	.014	.028	.042	.056	.071	.084	.098	.113	.126	.140		
14	.014	.028	.041	.054	.069	.082	.095	.110	.123	.137		
15	.014	.027	.040	.053	.067	.080	.092	.108	.120	.134		
16	.013	.026	.039	.052	.066	.078	.090	.105	.117	.130		
17	.013	.026	.038	.050	.064	.076	.087	.102	.114	.127		
18	.013	.025	.037	.049	.062	.074	.085	.100	.111	.124		
19	.012	.024	.036	.048	.060	.072	.084	.097	.108	.120		
20	2.012	4.023	6.035	8.047	10.058	12.070	14.082	16.094	18.105	20.117		
21	.012	.023	.034	.045	.057	.068	.079	.092	.102	.114		
22	.011	.022	.033	.044	.055	.066	.077	.089	.099	.110		
23	.011	.022	.032	.043	.054	.064	.074	.086	.096	.107		
24	.011	.021	.031	.041	.052	.062	.072	.084	.093	.104		
25	.010	.020	.030	.040	.050	.060	.069	.081	.090	.100		
26	.010	.019	.029	.039	.049	.058	.067	.079	.087	.097		
27	.010	.019	.028	.037	.047	.056	.065	.076	.084	.094		
28	.009	.018	.027	.036	.045	.054	.063	.073	.081	.090		
29	.009	.018	.026	.035	.044	.052	.060	.070	.078	.087		
30	2.008	4.017	6.025	8.034	10.042	12.050	14.058	16.067	18.076	20.084		
31	.008	.017	.024	.032	.041	.048	.056	.065	.073	.081		
32	.008	.016	.023	.031	.039	.046	.053	.062	.070	.077		
33	.007	.016	.022	.030	.037	.044	.051	.060	.067	.074		
34	.007	.015	.021	.028	.036	.042	.049	.058	.064	.071		
35	.007	.014	.020	.027	.034	.040	.047	.055	.061	.067		
36	.006	.014	.019	.026	.033	.038	.044	.053	.058	.064		
37	.006	.013	.018	.024	.031	.036	.042	.050	.055	.061		
38	.006	.012	.017	.023	.029	.035	.040	.047	.052	.058		
39	.005	.011	.016	.021	.027	.033	.038	.044	.049	.054		
40	2.005	4.010	6.015	8.020	10.025	12.031	14.036	16.041	18.046	20.051		
41	.005	.010	.014	.019	.023	.029	.033	.039	.043	.048		
42	.005	.009	.013	.017	.022	.027	.031	.036	.040	.044		
43	.004	.009	.012	.016	.020	.025	.029	.033	.037	.041		
44	.004	.008	.011	.015	.019	.023	.027	.031	.034	.038		
45	.004	.008	.010	.013	.018	.021	.024	.028	.031	.034		
46	.003	.007	.009	.012	.016	.019	.022	.026	.028	.031		
47	.003	.006	.008	.011	.014	.017	.020	.023	.025	.028		
48	.003	.005	.007	.010	.012	.015	.017	.020	.022	.024		
49	.002	.005	.006	.009	.011	.013	.015	.017	.019	.021		
50	2.002	4.004	6.005	8.007	10.009	12.011	14.013	16.014	18.016	20.018		
51	.002	.004	.004	.006	.007	.009	.010	.012	.013	.014		
52	.002	.003	.003	.005	.006	.007	.008	.009	.010	.010		
53	.001	.002	.002	.003	.004	.005	.006	.007	.007	.007		
54	.001	.002	.001	.002	.003	.003	.003	.004	.004	.004		
55	.001	.001	.000	.001	.001	.001	.001	.002	.001	.001		
56	.000	.001	5.999	7.999	9.999	11.999	13.999	15.999	17.998	19.997		
57	.000	.000	.998	.998	.998	.997	.996	.997	.995	.994		
58	.000	3.999	.997	.997	.996	.995	.993	.994	.992	.991		
59	1.999	3.998	.996	.995	.994	.993	.991	.991	.989	.988		
60	1.999	3.997	5.995	7.994	9.992	11.991	13.989	15.988	17.986	19.985		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.296
2	4.592
3	6.887
4	9.183
5	11.479
6	13.775
7	16.071
8	18.366
9	20.662
10	22.958

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
30 00	1.999	3.997	5.995	7.994	9.992	11.991	13.989	15.988	17.986	19.985	1	0.000
1	.999	.996	.994	.993	.990	.989	.987	.985	.983	.982	2	.001
2	.998	.995	.993	.991	.989	.987	.985	.982	.980	.978	3	.001
3	.998	.995	.992	.990	.987	.985	.982	.980	.977	.975	4	.002
4	.997	.994	.991	.988	.985	.983	.980	.977	.974	.971	5	.004
5	.997	.993	.990	.987	.984	.981	.978	.974	.971	.968	6	.005
											7	.007
6	.996	.992	.989	.985	.982	.979	.975	.972	.968	.965	8	.009
7	.996	.992	.988	.984	.981	.977	.973	.969	.965	.961	9	.012
8	.996	.991	.987	.983	.979	.975	.970	.966	.962	.958	10	.014
9	.995	.991	.986	.981	.977	.973	.968	.964	.959	.954		
10	1.995	3.990	5.985	7.980	9.975	11.971	13.966	15.961	17.956	19.951		
11	.995	.989	.984	.978	.974	.969	.963	.959	.953	.948		
12	.994	.989	.983	.977	.972	.967	.961	.956	.950	.944		
13	.994	.988	.982	.976	.970	.965	.958	.954	.947	.941		
14	.994	.987	.981	.974	.969	.963	.956	.951	.944	.938		
15	.994	.986	.980	.973	.967	.961	.953	.949	.941	.934		
16	.993	.986	.979	.971	.965	.959	.951	.946	.938	.931		
17	.993	.985	.978	.970	.964	.957	.948	.943	.935	.927		
18	.993	.984	.977	.969	.962	.955	.946	.940	.932	.924		
19	.992	.984	.976	.968	.960	.953	.944	.937	.928	.921		
20	1.992	3.983	5.975	7.967	9.958	11.950	13.942	15.934	17.925	19.917		
21	.992	.982	.974	.965	.957	.948	.939	.932	.922	.914		
22	.991	.982	.973	.964	.955	.946	.937	.929	.919	.910		
23	.991	.981	.972	.962	.953	.944	.934	.926	.916	.907		
24	.990	.981	.971	.961	.952	.942	.932	.923	.913	.904		
25	.990	.980	.970	.959	.950	.940	.929	.920	.910	.901		
26	.990	.979	.969	.958	.948	.938	.927	.918	.907	.898		
27	.989	.979	.968	.957	.947	.936	.924	.915	.904	.894		
28	.989	.978	.967	.955	.945	.934	.922	.912	.901	.891		
29	.989	.978	.966	.954	.943	.932	.920	.909	.898	.887		
30	1.988	3.977	5.965	7.953	9.941	11.930	13.918	15.906	17.895	19.883		
31	.988	.976	.964	.951	.940	.928	.915	.904	.892	.880		
32	.988	.976	.963	.950	.938	.926	.913	.901	.889	.876		
33	.987	.975	.962	.948	.936	.924	.910	.898	.886	.873		
34	.987	.974	.961	.947	.935	.922	.908	.895	.883	.869		
35	.987	.974	.960	.945	.933	.920	.905	.893	.880	.866		
36	.987	.973	.959	.944	.931	.918	.903	.890	.877	.862		
37	.986	.972	.958	.943	.930	.916	.900	.888	.874	.859		
38	.986	.972	.957	.942	.928	.914	.898	.885	.871	.856		
39	.986	.971	.956	.941	.926	.912	.896	.882	.867	.852		
40	1.985	3.970	5.955	7.940	9.924	11.909	13.894	15.879	17.864	19.849		
41	.985	.970	.954	.938	.923	.907	.891	.877	.861	.845		
42	.985	.969	.953	.937	.921	.905	.889	.874	.858	.842		
43	.984	.968	.952	.935	.919	.903	.886	.871	.855	.838		
44	.984	.968	.951	.934	.918	.901	.884	.869	.852	.835		
45	.984	.967	.950	.933	.916	.899	.881	.867	.849	.831		
46	.983	.966	.949	.932	.915	.897	.879	.864	.846	.828		
47	.983	.966	.948	.930	.913	.895	.876	.861	.843	.824		
48	.983	.965	.947	.929	.911	.893	.874	.858	.840	.821		
49	.982	.964	.946	.928	.909	.891	.872	.855	.836	.818		
50	1.982	3.963	5.945	7.926	9.907	11.889	13.870	15.852	17.833	19.815		
51	.982	.963	.944	.925	.906	.887	.867	.850	.830	.812		
52	.981	.962	.943	.924	.904	.885	.865	.847	.827	.808		
53	.981	.961	.942	.922	.902	.883	.862	.844	.824	.805		
54	.981	.961	.941	.921	.901	.881	.860	.842	.821	.802		
55	.980	.960	.940	.920	.899	.879	.857	.839	.818	.798		
56	.980	.959	.939	.918	.897	.877	.855	.837	.815	.795		
57	.980	.959	.938	.917	.895	.875	.853	.834	.812	.792		
58	.979	.958	.937	.916	.894	.873	.851	.831	.809	.788		
59	.979	.957	.936	.914	.892	.871	.849	.829	.807	.785		
60	1.978	3.956	5.935	7.913	9.891	11.869	13.847	15.826	17.804	19.782		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.296
2	4.592
3	6.888
4	9.184
5	11.480
6	13.777
7	16.073
8	18.369
9	20.665
10	22.961

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinate of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
31 00	1.978	3.956	5.935	7.913	9.891	11.869	13.847	15.826	17.804	19.782	1	0.000
1	.978	.955	.934	.912	.889	.867	.845	.823	.801	.779	2	.001
2	.978	.954	.933	.910	.887	.865	.842	.820	.798	.775	3	.001
3	.977	.954	.932	.909	.886	.863	.840	.818	.795	.772	4	.002
4	.977	.953	.931	.908	.884	.861	.837	.815	.791	.768	5	.004
5	.977	.953	.930	.906	.882	.859	.835	.812	.788	.765	6	.005
											7	.007
6	.976	.952	.928	.905	.880	.857	.832	.810	.785	.761	8	.009
7	.976	.951	.927	.903	.879	.855	.830	.807	.782	.758	9	.012
8	.976	.950	.926	.902	.877	.853	.827	.804	.778	.754	10	.015
9	.975	.950	.925	.900	.875	.851	.825	.801	.775	.751		
10	1.975	3.949	5.924	7.899	9.873	11.848	13.823	15.798	17.772	19.747		
11	.975	.948	.923	.897	.871	.846	.820	.795	.769	.743		
12	.974	.948	.922	.896	.869	.844	.818	.793	.765	.740		
13	.974	.947	.921	.894	.868	.842	.816	.791	.762	.736		
14	.974	.946	.920	.893	.866	.840	.813	.788	.759	.733		
15	.973	.946	.919	.891	.864	.838	.811	.785	.756	.729		
16	.973	.945	.918	.890	.862	.836	.809	.782	.753	.726		
17	.972	.945	.917	.889	.861	.834	.806	.779	.750	.723		
18	.972	.944	.916	.887	.859	.832	.803	.776	.747	.719		
19	.972	.943	.915	.886	.858	.830	.801	.773	.744	.716		
20	1.971	3.942	5.914	7.885	9.856	11.827	13.798	15.770	17.741	19.712		
21	.971	.942	.913	.883	.854	.825	.796	.768	.738	.709		
22	.971	.941	.912	.882	.853	.823	.793	.765	.735	.705		
23	.970	.941	.911	.880	.851	.821	.791	.762	.732	.702		
24	.970	.940	.910	.879	.849	.819	.788	.759	.728	.698		
25	.970	.940	.909	.877	.848	.817	.785	.756	.725	.695		
26	.969	.939	.908	.876	.846	.815	.783	.754	.722	.691		
27	.969	.938	.906	.875	.844	.813	.781	.751	.718	.688		
28	.969	.937	.905	.874	.842	.811	.778	.748	.715	.685		
29	.968	.936	.904	.872	.840	.808	.776	.745	.712	.681		
30	1.968	3.935	5.903	7.871	9.838	11.806	13.774	15.742	17.709	19.677		
31	.968	.935	.902	.870	.836	.804	.771	.739	.706	.673		
32	.968	.934	.901	.869	.835	.802	.769	.736	.703	.670		
33	.967	.933	.900	.867	.833	.800	.766	.734	.700	.666		
34	.967	.933	.899	.866	.831	.798	.764	.731	.696	.663		
35	.967	.932	.898	.864	.830	.796	.761	.728	.693	.659		
36	.966	.932	.897	.863	.828	.794	.759	.725	.690	.656		
37	.966	.931	.896	.861	.826	.792	.756	.723	.687	.652		
38	.965	.930	.895	.860	.825	.790	.754	.720	.684	.649		
39	.965	.929	.894	.858	.823	.788	.751	.717	.681	.645		
40	1.964	3.928	5.893	7.857	9.821	11.785	13.749	15.714	17.678	19.642		
41	.964	.928	.892	.855	.819	.783	.746	.711	.675	.638		
42	.964	.927	.891	.854	.818	.781	.744	.709	.672	.635		
43	.963	.926	.890	.852	.816	.779	.741	.706	.669	.631		
44	.963	.926	.889	.851	.814	.777	.739	.703	.665	.628		
45	.963	.925	.888	.849	.813	.775	.736	.701	.662	.624		
46	.962	.924	.887	.847	.811	.773	.734	.698	.659	.621		
47	.962	.923	.886	.846	.809	.771	.731	.695	.656	.617		
48	.962	.922	.884	.845	.807	.769	.729	.692	.653	.614		
49	.961	.922	.883	.844	.805	.766	.727	.689	.650	.610		
50	1.961	3.921	5.882	7.843	9.803	11.764	13.725	15.686	17.646	19.607		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.296
2	4.593
3	6.889
4	9.186
5	11.482
6	13.779
7	16.075
8	18.372
9	20.668
10	22.965

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinate of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
51	.961	.921	.881	.841	.801	.762	.722	.684	.643	.603		
52	.960	.920	.880	.840	.800	.760	.720	.681	.640	.600		
53	.960	.920	.879	.839	.798	.758	.717	.679	.637	.596		
54	.960	.919	.878	.837	.796	.756	.714	.676	.634	.593		
55	.959	.919	.877	.836	.794	.754	.712	.673	.631	.589		
56	.959	.918	.876	.835	.793	.752	.710	.670	.628	.586		
57	.958	.917	.875	.833	.791	.750	.707	.667	.625	.582		
58	.958	.916	.874	.831	.789	.748	.705	.664	.622	.579		
59	.958	.916	.873	.830	.787	.746	.703	.661	.619	.576		
60	1.957	3.915	5.872	7.829	9.786	11.744	13.701	15.658	17.616	19.573		

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
											1	0.000
32 00	1.957	3.915	5.872	7.829	9.786	11.744	13.701	15.658	17.616	19.573	2	.001
1	.957	.914	.871	.828	.784	.742	.698	.655	.613	.570	3	.001
2	.957	.913	.870	.826	.782	.740	.696	.652	.610	.566	4	.002
3	.956	.912	.869	.825	.781	.737	.693	.650	.606	.563	5	.004
4	.956	.912	.868	.823	.779	.735	.691	.647	.603	.559	6	.005
5	.956	.911	.867	.822	.777	.733	.688	.644	.600	.556	7	.007
											8	.010
6	.955	.910	.866	.820	.776	.731	.686	.641	.597	.552	9	.012
7	.955	.909	.865	.819	.774	.728	.683	.639	.593	.549	10	.015
8	.955	.908	.864	.817	.772	.726	.681	.636	.590	.545		
9	.954	.908	.863	.816	.770	.724	.679	.633	.587	.541		
10	1.954	3.907	5.861	7.815	9.768	11.722	13.676	15.630	17.583	19.537		
11	.954	.906	.860	.813	.767	.720	.674	.627	.580	.534		
12	.953	.905	.859	.812	.765	.718	.671	.624	.577	.530		
13	.953	.905	.858	.810	.763	.716	.669	.621	.574	.527		
14	.953	.904	.857	.808	.762	.714	.666	.618	.570	.524		
15	.952	.904	.856	.807	.760	.712	.664	.615	.567	.520		
16	.952	.903	.855	.805	.758	.710	.661	.612	.564	.516		
17	.952	.902	.854	.804	.756	.708	.659	.609	.561	.513		
18	.951	.901	.853	.802	.754	.706	.656	.606	.558	.509		
19	.951	.901	.852	.801	.752	.704	.654	.604	.554	.505		
20	1.950	3.900	5.850	7.800	9.750	11.701	13.651	15.601	17.551	19.501		
21	.950	.899	.849	.798	.748	.699	.649	.598	.548	.498		
22	.949	.898	.848	.797	.747	.697	.646	.595	.544	.494		
23	.949	.898	.847	.795	.745	.694	.644	.592	.541	.491		
24	.949	.897	.846	.794	.743	.692	.641	.589	.538	.487		
25	.948	.896	.845	.793	.742	.690	.639	.586	.535	.483		
26	.948	.895	.844	.792	.740	.688	.636	.583	.531	.480		
27	.947	.895	.843	.790	.738	.686	.634	.580	.528	.476		
28	.947	.894	.842	.788	.736	.683	.631	.577	.525	.473		
29	.947	.893	.840	.787	.734	.681	.628	.575	.521	.469		
30	1.946	3.893	5.839	7.786	9.732	11.679	13.625	15.572	17.518	19.465		
31	.946	.892	.838	.784	.731	.677	.623	.569	.515	.462		
32	.946	.891	.837	.783	.730	.675	.620	.566	.511	.458		
33	.945	.891	.836	.781	.728	.673	.618	.563	.508	.455		
34	.945	.890	.835	.780	.726	.670	.615	.560	.505	.451		
35	.945	.889	.834	.778	.725	.668	.613	.557	.502	.447		
36	.944	.888	.833	.777	.723	.666	.610	.554	.498	.444		
37	.944	.888	.832	.775	.721	.664	.608	.551	.495	.440		
38	.944	.887	.831	.774	.719	.662	.605	.548	.492	.436		
39	.943	.886	.830	.773	.717	.660	.603	.546	.489	.433		
40	1.943	3.886	5.829	7.772	9.714	11.657	13.600	15.543	17.486	19.429		
41	.943	.885	.828	.770	.712	.655	.598	.540	.483	.426		
42	.942	.884	.827	.769	.711	.653	.595	.537	.479	.422		
43	.942	.884	.826	.767	.709	.651	.593	.534	.476	.419		
44	.942	.883	.825	.766	.707	.649	.592	.531	.472	.415		
45	.941	.882	.824	.765	.705	.647	.590	.528	.468	.411		
46	.941	.882	.823	.763	.703	.645	.587	.525	.465	.408		
47	.940	.881	.822	.762	.702	.643	.585	.522	.462	.404		
48	.940	.880	.821	.760	.700	.641	.582	.519	.459	.401		
49	.940	.879	.820	.759	.698	.638	.578	.517	.457	.397		
50	1.939	3.879	5.818	7.757	9.696	11.636	13.575	15.514	17.454	19.393		
51	.939	.878	.817	.756	.694	.633	.573	.511	.451	.390		
52	.939	.877	.816	.754	.693	.631	.570	.508	.448	.386		
53	.938	.877	.815	.753	.691	.629	.568	.505	.444	.383		
54	.938	.876	.814	.751	.689	.627	.565	.503	.441	.379		
55	.938	.875	.813	.750	.687	.625	.563	.500	.438	.376		
56	.937	.875	.812	.748	.685	.623	.560	.497	.434	.372		
57	.937	.874	.811	.747	.683	.621	.558	.494	.431	.369		
58	.937	.873	.810	.745	.681	.618	.555	.491	.428	.365		
59	.936	.872	.808	.744	.680	.616	.553	.488	.424	.361		
60	1.936	3.871	5.807	7.743	9.678	11.614	13.550	15.486	17.421	19.357		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.297
2	4.594
3	6.891
4	9.188
5	11.484
6	13.781
7	16.078
8	18.375
9	20.672
10	22.969

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
33 00	1.936	3.871	5.807	7.743	9.678	11.614	13.550	15.486	17.421	19.357	1	0.000
1	.936	.870	.806	.741	.676	.612	.547	.483	.418	.353	2	.001
2	.936	.869	.805	.740	.674	.610	.545	.480	.415	.349	3	.001
3	.935	.869	.804	.738	.673	.607	.542	.477	.411	.346	4	.002
4	.935	.868	.803	.737	.671	.605	.540	.474	.408	.343	5	.004
5	.934	.867	.801	.735	.669	.603	.537	.471	.405	.339	6	.005
											7	.007
6	.934	.867	.800	.734	.667	.601	.534	.468	.401	.335	8	.010
7	.933	.866	.799	.732	.665	.598	.532	.465	.398	.332	9	.012
8	.933	.865	.798	.731	.664	.596	.529	.462	.395	.328	10	.015
9	.932	.865	.797	.729	.662	.594	.527	.459	.392	.324		
10	1.932	3.864	5.796	7.728	9.660	11.592	13.524	15.456	17.388	19.320		
11	.932	.863	.795	.726	.658	.590	.522	.453	.385	.316		
12	.931	.862	.794	.725	.657	.587	.519	.450	.382	.312		
13	.931	.862	.793	.723	.655	.585	.517	.447	.378	.309		
14	.930	.861	.792	.722	.653	.583	.514	.444	.375	.305		
15	.930	.860	.790	.720	.651	.581	.512	.441	.372	.302		
16	.930	.860	.789	.719	.649	.579	.509	.438	.369	.298		
17	.929	.859	.788	.717	.647	.577	.506	.435	.366	.294		
18	.929	.858	.787	.716	.645	.575	.504	.432	.362	.291		
19	.929	.858	.786	.714	.643	.572	.500	.429	.359	.287		
20	1.928	3.857	5.785	7.713	9.641	11.570	13.498	15.426	17.355	19.283		
21	.928	.856	.784	.711	.640	.568	.495	.423	.352	.280		
22	.928	.855	.783	.710	.638	.566	.493	.420	.349	.276		
23	.927	.854	.782	.708	.636	.564	.490	.417	.345	.272		
24	.927	.853	.780	.707	.634	.561	.487	.414	.342	.269		
25	.927	.853	.779	.705	.632	.559	.485	.411	.339	.265		
26	.926	.852	.778	.703	.631	.557	.482	.408	.335	.261		
27	.926	.851	.777	.702	.629	.555	.480	.405	.332	.258		
28	.926	.850	.776	.700	.627	.553	.477	.402	.328	.254		
29	.926	.849	.775	.699	.625	.551	.475	.400	.325	.250		
30	1.925	3.849	5.774	7.698	9.623	11.548	13.472	15.397	17.321	19.246		
31	.925	.848	.773	.696	.621	.546	.470	.394	.318	.243		
32	.925	.847	.772	.695	.619	.544	.467	.391	.315	.239		
33	.924	.847	.771	.693	.617	.542	.465	.388	.312	.236		
34	.924	.846	.769	.692	.615	.540	.462	.385	.308	.232		
35	.923	.846	.768	.690	.613	.537	.460	.382	.305	.228		
36	.923	.845	.767	.689	.611	.535	.457	.379	.301	.224		
37	.922	.844	.766	.687	.609	.532	.455	.376	.298	.221		
38	.922	.843	.765	.686	.607	.530	.452	.373	.295	.217		
39	.922	.843	.764	.685	.605	.528	.449	.370	.291	.213		
40	1.921	3.842	5.763	7.684	9.604	11.525	13.446	15.367	17.288	19.209		
41	.921	.841	.762	.682	.602	.523	.444	.364	.285	.205		
42	.920	.840	.761	.681	.600	.521	.441	.361	.281	.202		
43	.920	.839	.760	.679	.599	.518	.439	.358	.278	.198		
44	.920	.839	.758	.678	.597	.516	.436	.355	.274	.194		
45	.919	.838	.757	.676	.595	.514	.434	.352	.271	.191		
46	.919	.837	.756	.675	.593	.512	.431	.349	.267	.187		
47	.918	.836	.755	.673	.591	.510	.429	.346	.263	.184		
48	.918	.836	.754	.672	.589	.508	.426	.343	.260	.180		
49	.918	.835	.753	.670	.588	.505	.423	.340	.257	.176		
50	1.917	3.834	5.752	7.669	9.586	11.503	13.420	15.338	17.255	19.172		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.297
2	4.594
3	6.892
4	9.189
5	11.486
6	13.783
7	16.080
8	18.378
9	20.675
10	22.972

Latitude of parallel.	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
51	.917	.834	.751	.667	.584	.501	.418	.335	.252	.169
52	.917	.833	.750	.666	.583	.499	.415	.332	.248	.165
53	.916	.832	.749	.664	.581	.497	.413	.330	.245	.161
54	.916	.832	.748	.663	.579	.494	.410	.327	.242	.158
55	.916	.831	.747	.661	.577	.492	.408	.324	.238	.154
56	.915	.830	.746	.660	.575	.490	.405	.321	.235	.150
57	.915	.829	.744	.658	.573	.488	.403	.318	.231	.146
58	.915	.828	.743	.657	.571	.486	.400	.315	.228	.142
59	.914	.828	.742	.655	.570	.484	.397	.312	.225	.139
60	1.914	3.827	5.741	7.654	9.568	11.482	13.395	15.309	17.222	19.136

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*		*Inches.*
34 00	1.914	3.827	5.741	7.654	9.568	11.482	13.395	15.309	17.222	19.136	1	0.000
1	.914	.827	.740	.652	.566	.480	.392	.306	.219	.132	2	.001
2	.913	.826	.739	.651	.564	.478	.390	.303	.215	.128	3	.001
3	.913	.825	.737	.649	.562	.475	.387	.300	.212	.125	4	.002
4	.913	.824	.736	.648	.560	.473	.385	.297	.208	.121	5	.004
5	.912	.824	.735	.646	.558	.471	.382	.294	.205	.117	6	.006
6	.912	.823	.734	.645	.556	.468	.380	.291	.201	.113	7	.008
7	.911	.822	.733	.643	.554	.466	.377	.288	.198	.109	8	.010
8	.911	.821	.731	.642	.552	.463	.375	.285	.194	.106	9	.012
9	.911	.821	.730	.640	.550	.461	.372	.282	.191	.102	10	.015
10	1.910	3.820	5.729	7.639	9.549	11.459	13.369	15.278	17.188	19.098		
11	.910	.819	.728	.637	.547	.457	.367	.275	.184	.094		
12	.909	.819	.726	.636	.545	.454	.364	.272	.181	.090		
13	.909	.818	.725	.635	.543	.452	.362	.269	.177	.087		
14	.909	.817	.724	.633	.541	.449	.359	.266	.174	.083		
15	.908	.816	.723	.632	.539	.447	.357	.263	.170	.079		
16	.908	.815	.722	.630	.537	.445	.354	.260	.167	.075		
17	.907	.814	.721	.629	.535	.442	.351	.257	.164	.072		
18	.907	.813	.720	.627	.533	.440	.348	.254	.160	.068		
19	.907	.813	.719	.626	.531	.438	.345	.251	.157	.064		
20	1.906	3.812	5.718	7.624	9.530	11.436	13.342	15.248	17.154	19.060		
21	.906	.811	.717	.623	.528	.433	.339	.245	.150	.056		
22	.905	.810	.715	.621	.526	.431	.337	.242	.147	.052		
23	.905	.809	.714	.620	.524	.428	.334	.239	.143	.048		
24	.905	.808	.713	.618	.522	.426	.332	.236	.140	.045		
25	.904	.807	.712	.617	.520	.423	.329	.233	.136	.041		
26	.904	.806	.711	.615	.518	.421	.326	.230	.133	.037		
27	.903	.805	.710	.614	.516	.419	.324	.227	.129	.033		
28	.903	.805	.709	.612	.514	.417	.321	.224	.126	.029		
29	.903	.804	.708	.610	.512	.415	.318	.221	.123	.026		
30	1.902	3.804	5.707	7.609	9.511	11.413	13.315	15.218	17.120	19.022		
31	.902	.803	.706	.607	.509	.410	.313	.215	.116	.018		
32	.901	.802	.704	.606	.507	.408	.310	.212	.113	.014		
33	.901	.802	.703	.604	.505	.406	.308	.209	.110	.011		
34	.901	.801	.702	.603	.503	.404	.305	.206	.106	.007		
35	.900	.800	.701	.601	.501	.401	.302	.203	.103	.003		
36	.900	.799	.700	.600	.499	.399	.300	.200	.099	.000		
37	.899	.799	.699	.598	.497	.397	.297	.197	.096	18.996		
38	.899	.798	.698	.597	.495	.395	.294	.194	.092	.992		
39	.899	.797	.696	.595	.493	.392	.292	.191	.089	.988		
40	1.898	3.797	5.695	7.594	9.492	11.390	13.289	15.187	17.086	18.984		
41	.898	.796	.694	.592	.490	.388	.286	.184	.082	.980		
42	.898	.795	.693	.591	.488	.386	.284	.181	.079	.976		
43	.897	.794	.692	.589	.486	.383	.281	.178	.075	.973		
44	.897	.794	.691	.588	.484	.381	.278	.175	.072	.969		
45	.897	.793	.690	.586	.482	.378	.276	.172	.068	.965		
46	.896	.792	.689	.585	.480	.376	.273	.169	.065	.961		
47	.896	.792	.688	.583	.478	.374	.271	.166	.061	.958		
48	.896	.791	.687	.582	.476	.372	.268	.163	.058	.954		
49	.895	.790	.686	.580	.474	.370	.265	.160	.054	.950		
50	1.895	3.789	5.684	7.578	9.473	11.368	13.262	15.157	17.051	18.946		
51	.895	.788	.683	.577	.471	.365	.260	.154	.048	.942		
52	.894	.787	.682	.575	.469	.363	.257	.151	.044	.939		
53	.894	.786	.681	.574	.467	.361	.255	.148	.041	.935		
54	.893	.786	.680	.572	.465	.359	.252	.145	.037	.931		
55	.893	.785	.678	.571	.463	.357	.250	.142	.034	.927		
56	.893	.784	.677	.570	.461	.354	.247	.139	.030	.923		
57	.892	.783	.676	.568	.459	.352	.244	.136	.027	.920		
58	.892	.783	.675	.567	.457	.350	.242	.133	.024	.916		
59	.891	.782	.674	.565	.455	.347	.239	.130	.021	.912		
60	1.891	3.782	5.673	7.564	9.454	11.345	13.236	15.127	17.018	18.909		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.298
2	4.595
3	6.893
4	9.190
5	11.488
6	13.786
7	16.083
8	18.381
9	20.678
10	22.976

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
35 00	1.891	3.782	5.673	7.564	9.454	11.345	13.236	15.127	17.018	18.909	1	0.000
1	.891	.781	.672	.562	.452	.343	.234	.124	.015	.905	2	.001
2	.890	.780	.670	.561	.450	.341	.231	.121	.011	.901	3	.001
3	.890	.780	.669	.559	.448	.338	.228	.118	.008	.897	4	.002
4	.890	.779	.668	.558	.446	.336	.225	.115	.004	.893	5	.004
5	.889	.778	.667	.556	.444	.334	.223	.112	.001	.890	6	.006
											7	.008
6	.889	.777	.666	.555	.442	.331	.220	.109	16.997	.886	8	.010
7	.888	.776	.665	.553	.440	.329	.217	.106	.994	.882	9	.013
8	.888	.775	.663	.552	.438	.327	.214	.103	.990	.878	10	.016
9	.888	.775	.662	.550	.436	.325	.212	.100	.987	.874		
10	1.887	3.774	5.661	7.548	9.435	11.322	13.209	15.096	16.983	18.870		
11	.887	.773	.660	.547	.433	.320	.206	.093	.980	.866		
12	.886	.772	.658	.545	.431	.318	.203	.090	.976	.862		
13	.886	.772	.657	.544	.429	.315	.201	.087	.973	.858		
14	.886	.771	.656	.543	.427	.313	.198	.084	.969	.854		
15	.885	.770	.655	.541	.425	.311	.195	.081	.966	.851		
16	.885	.769	.654	.539	.423	.308	.193	.078	.962	.847		
17	.884	.768	.652	.538	.421	.306	.190	.075	.958	.843		
18	.884	.767	.651	.536	.419	.304	.187	.072	.955	.839		
19	.884	.767	.650	.534	.417	.301	.185	.069	.951	.835		
20	1.883	3.766	5.649	7.532	9.415	11.299	13.182	15.065	16.948	18.831		
21	.883	.765	.648	.531	.413	.297	.179	.062	.944	.827		
22	.882	.764	.647	.529	.411	.294	.176	.059	.941	.823		
23	.882	.763	.646	.528	.409	.292	.174	.056	.937	.819		
24	.882	.763	.645	.526	.407	.289	.171	.053	.934	.815		
25	.881	.762	.644	.525	.405	.287	.168	.050	.930	.811		
26	.881	.761	.643	.523	.403	.284	.165	.047	.927	.808		
27	.880	.760	.642	.522	.401	.282	.162	.044	.923	.804		
28	.880	.759	.641	.520	.399	.279	.160	.041	.920	.800		
29	.880	.759	.640	.519	.397	.277	.157	.038	.916	.796		
30	1.879	3.758	5.638	7.517	9.396	11.275	13.154	15.034	16.913	18.792		
31	.879	.757	.637	.516	.394	.272	.152	.031	.909	.788		
32	.878	.757	.636	.514	.392	.270	.149	.028	.906	.784		
33	.878	.756	.634	.513	.390	.267	.147	.025	.902	.780		
34	.878	.755	.633	.511	.388	.265	.144	.022	.899	.777		
35	.877	.754	.632	.510	.386	.263	.141	.019	.895	.773		
36	.877	.754	.631	.508	.384	.260	.139	.016	.892	.769		
37	.876	.753	.630	.507	.382	.258	.136	.013	.888	.765		
38	.876	.752	.628	.505	.380	.256	.133	.010	.885	.761		
39	.876	.752	.627	.503	.378	.254	.130	.006	.881	.757		
40	1.875	3.751	5.626	7.501	9.376	11.252	13.127	15.002	16.878	18.753		
41	.875	.750	.625	.500	.374	.250	.124	14.999	.874	.749		
42	.874	.750	.623	.498	.372	.247	.122	.996	.871	.745		
43	.874	.749	.622	.497	.370	.245	.119	.993	.867	.741		
44	.874	.748	.621	.495	.368	.242	.116	.990	.864	.737		
45	.873	.747	.620	.493	.366	.240	.113	.987	.860	.733		
46	.873	.746	.619	.492	.364	.237	.111	.984	.857	.730		
47	.873	.746	.618	.490	.362	.235	.108	.981	.853	.726		
48	.872	.745	.616	.489	.360	.232	.105	.978	.850	.722		
49	.872	.744	.615	.487	.358	.230	.102	.974	.846	.718		
50	1.871	3.743	5.614	7.486	9.357	11.228	13.100	14.971	16.843	18.714		
51	.871	.742	.613	.484	.355	.226	.097	.968	.839	.710		
52	.871	.741	.611	.483	.353	.224	.094	.965	.836	.707		
53	.870	.741	.610	.481	.351	.221	.092	.962	.832	.703		
54	.870	.740	.609	.480	.349	.219	.089	.959	.829	.699		
55	.870	.739	.608	.478	.347	.217	.086	.956	.825	.695		
56	.869	.738	.607	.477	.345	.215	.084	.953	.822	.691		
57	.869	.737	.606	.475	.343	.213	.081	.950	.818	.687		
58	.869	.736	.605	.474	.341	.211	.078	.947	.815	.683		
59	.868	.735	.604	.472	.339	.208	.075	.944	.811	.679		
60	1.868	3.735	5.603	7.470	9.338	11.206	13.073	14.941	16.808	18.676		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.298
2	4.596
3	6.894
4	9.192
5	11.490
6	13.788
7	16.086
8	18.384
9	20.682
10	22.980

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ lon.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
36 00	1.868	3.735	5.603	7.470	9.338	11.206	13.073	14.941	16.808	18.676	1	0.000
1	.868	.734	.602	.468	.336	.204	.070	.938	.804	.672	2	.001
2	.867	.733	.601	.467	.334	.201	.067	.935	.801	.668	3	.001
3	.867	.733	.599	.465	.332	.199	.065	.931	.798	.664	4	.003
4	.867	.732	.598	.464	.330	.196	.062	.928	.794	.660	5	.004
5	.866	.731	.597	.462	.328	.194	.059	.925	.790	.656	6	.006
											7	.008
6	.866	.730	.596	.461	.326	.191	.057	.922	.787	.652	8	.010
7	.865	.729	.595	.459	.324	.189	.054	.918	.784	.648	9	.013
8	.865	.729	.594	.458	.322	.187	.051	.915	.780	.644	10	.016
9	.865	.728	.592	.456	.320	.184	.048	.912	.776	.640		
10	1.864	3.727	5.591	7.454	9.318	11.182	13.045	14.909	16.772	18.636		
11	.864	.726	.590	.453	.316	.180	.042	.906	.769	.632		
12	.863	.725	.589	.451	.314	.177	.039	.903	.765	.628		
13	.863	.725	.587	.450	.312	.175	.037	.899	.762	.624		
14	.863	.724	.586	.448	.310	.172	.034	.896	.758	.620		
15	.862	.723	.585	.447	.308	.170	.031	.893	.755	.616		
16	.862	.722	.584	.445	.306	.167	.028	.890	.751	.612		
17	.861	.721	.583	.444	.304	.165	.026	.886	.748	.608		
18	.861	.721	.581	.442	.302	.163	.023	.883	.744	.604		
19	.861	.720	.580	.440	.300	.160	.020	.880	.740	.600		
20	1.860	3.719	5.579	7.438	9.298	11.158	13.017	14.877	16.736	18.596		
21	.860	.718	.578	.437	.296	.156	.014	.874	.733	.592		
22	.859	.717	.577	.435	.294	.154	.011	.871	.729	.588		
23	.859	.717	.575	.434	.292	.151	.009	.867	.726	.584		
24	.859	.716	.574	.432	.290	.149	.006	.864	.722	.580		
25	.858	.715	.573	.431	.288	.147	.003	.861	.719	.576		
26	.858	.714	.572	.429	.286	.144	.000	.858	.715	.572		
27	.857	.713	.570	.428	.284	.142	12.998	.854	.712	.568		
28	.857	.713	.569	.426	.282	.139	.995	.851	.708	.564		
29	.857	.712	.568	.424	.280	.137	.992	.848	.704	.560		
30	1.856	3.711	5.567	7.422	9.278	11.134	12.989	14.845	16.700	18.556		
31	.856	.710	.566	.421	.276	.132	.986	.842	.697	.552		
32	.855	.709	.564	.419	.274	.129	.983	.838	.694	.548		
33	.855	.708	.563	.418	.272	.127	.981	.835	.690	.544		
34	.855	.708	.562	.416	.270	.124	.978	.832	.686	.540		
35	.854	.707	.561	.415	.268	.122	.975	.829	.683	.536		
36	.854	.706	.560	.413	.266	.119	.972	.826	.679	.532		
37	.853	.705	.558	.412	.264	.117	.970	.822	.676	.528		
38	.853	.705	.557	.410	.262	.114	.967	.819	.672	.524		
39	.853	.704	.556	.408	.260	.112	.964	.816	.668	.520		
40	1.852	3.703	5.555	7.406	9.258	11.110	12.961	14.813	16.664	18.516		
41	.852	.702	.554	.405	.256	.107	.958	.810	.661	.512		
42	.851	.701	.553	.403	.254	.105	.955	.807	.657	.508		
43	.851	.701	.551	.402	.252	.102	.953	.803	.654	.504		
44	.851	.700	.550	.400	.250	.100	.950	.800	.650	.500		
45	.850	.699	.549	.399	.248	.097	.947	.796	.647	.496		
46	.850	.698	.548	.397	.246	.095	.944	.793	.643	.492		
47	.849	.697	.547	.396	.244	.093	.942	.790	.640	.488		
48	.849	.697	.546	.394	.242	.090	.939	.787	.636	.484		
49	.849	.696	.544	.392	.240	.088	.936	.784	.632	.480		
50	1.848	3.695	5.543	7.390	9.238	11.086	12.933	14.781	16.628	18.476		
51	.848	.694	.542	.389	.236	.083	.930	.778	.625	.472		
52	.847	.693	.541	.387	.234	.081	.928	.775	.621	.468		
53	.847	.693	.540	.386	.232	.079	.925	.772	.618	.464		
54	.847	.692	.538	.384	.230	.076	.922	.769	.614	.460		
55	.846	.691	.537	.383	.228	.074	.920	.765	.611	.456		
56	.846	.690	.536	.381	.226	.071	.917	.762	.607	.452		
57	.845	.689	.535	.380	.224	.069	.915	.759	.604	.448		
58	.845	.689	.534	.378	.222	.067	.912	.756	.600	.444		
59	.845	.688	.532	.377	.220	.065	.909	.753	.597	.440		
60	1.844	3.687	5.531	7.375	9.218	11.062	12.906	14.750	16.593	18.437		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.298
2	4.597
3	6.895
4	9.194
5	11.492
6	13.790
7	16.089
8	18.387
9	20.686
10	22.984

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
37 00	1.844	3.687	5.531	7.375	9.218	11.062	12.906	14.750	16.593	18.437	1	0.000
1	.844	.686	.530	.373	.216	.060	.903	.747	.589	.433	2	.001
2	.843	.685	.529	.371	.214	.057	.900	.744	.585	.429	3	.001
3	.843	.684	.528	.370	.212	.055	.897	.740	.582	.425	4	.003
4	.843	.683	.526	.368	.210	.052	.894	737	.578	.421	5	.004
5	.842	.683	.525	.366	.208	.050	.891	.734	.574	.417	6	.006
											7	.008
6	.842	.682	.524	.365	.206	.047	.888	.731	.571	.413	8	.010
7	.841	.681	.523	.363	.204	.045	.885	.728	.567	.409	9	.013
8	.841	.680	.521	.362	.202	.043	.882	.724	.563	.405	10	.016
9	.840	.680	.520	.360	.200	.040	.880	.721	.560	.401		
10	1.840	3.679	5.519	7.358	9.198	11.038	12.877	14.717	16.556	18.396		
11	.840	.679	.518	.357	.196	.035	.874	.714	.552	.392		
12	.839	.678	.517	.355	.194	.033	.871	.710	.548	.388		
13	.839	.677	.516	.354	.192	.030	.868	.707	.545	.384		
14	.838	.676	.514	.352	.190	.028	.865	.704	.541	.380		
15	.838	.675	.513	.350	.188	.025	.862	.701	.537	.376		
16	.838	.674	.512	.349	.186	.022	.860	.697	.534	.372		
17	.837	.673	.511	.347	.184	.020	.857	.694	.530	.368		
18	.837	.673	.510	.345	.182	.018	.854	.691	.527	.364		
19	.836	.672	.508	.344	.180	.016	.851	.688	.523	.360		
20	1.836	3.671	5.507	7.342	9.177	11.013	12.848	14.684	16.519	18.355		
21	.835	.670	.505	.341	.175	.011	.845	.681	.516	.351		
22	.835	.669	.504	.339	.173	.008	.842	.677	.512	.347		
23	.834	.669	.503	.337	.171	.006	.840	.674	.509	.343		
24	.834	.668	.502	.336	.169	.003	.837	.671	.505	.339		
25	.833	.667	.500	.334	.167	.001	.834	.667	.502	.335		
26	.833	.666	.499	.332	.165	10.998	.831	.664	.498	.331		
27	.832	.665	.498	.331	.163	.996	.829	.661	.494	.327		
28	.832	.664	.497	.329	.161	.993	.826	.658	.491	.323		
29	.831	.664	.495	.327	.159	.991	.823	.654	.487	.319		
30	1.831	3.663	5.494	7.326	9.157	10.988	12.820	14.651	16.483	18.314		
31	.831	.662	.492	.324	.155	.986	.817	.647	.480	.310		
32	.830	.661	.491	.323	.153	.983	.814	.644	.476	.306		
33	.830	.661	.490	.321	.151	.981	.811	.641	.472	.302		
34	.829	.660	.489	.320	.149	.978	.808	.638	.469	.298		
35	.829	.660	.488	.318	.147	.976	.806	.635	.465	.294		
36	.828	.659	.486	.317	.145	.973	.803	.632	.462	.290		
37	.828	.658	.485	.315	.143	.971	.800	.629	.458	.286		
38	.828	.657	.484	.314	.141	.968	.797	.625	.455	.282		
39	.827	.656	.483	.312	.139	.966	.795	.622	.451	.278		
40	1.827	3.655	5.482	7.310	9.137	10.964	12.792	14.619	16.447	18.274		
41	.826	.654	.480	.309	.135	.962	.789	.616	.444	.270		
42	.826	.653	.479	.307	.133	.959	.786	.612	.440	.266		
43	.825	.653	.478	.305	.131	.957	.783	.609	.437	.262		
44	.825	.652	.476	.304	.129	.954	.780	.606	.433	.358		
45	.825	.651	.475	.302	.127	.952	.777	.603	.429	.254		
46	.824	.650	.474	.300	.125	.950	.774	.600	.426	.250		
47	.824	.650	.473	.299	.123	.947	.771	.596	.422	.246		
48	.824	.649	.472	.297	.121	.945	.768	.593	.418	.242		
49	.823	.648	.471	.295	.119	.942	.765	.590	.414	.238		
50	1.823	3.647	5.470	7.293	9.116	10.940	12.763	14.586	16.410	18.233		
51	.823	.646	.468	.292	.114	.938	.760	.583	.407	.229		
52	.822	.645	.467	.290	.112	.935	.757	.580	.403	.225		
53	.822	.645	.466	.289	.110	.933	.755	.576	.399	.221		
54	.822	.644	.465	.287	.108	.930	.752	.573	.395	.217		
55	.821	.643	.464	.285	.106	.928	.749	.570	.392	.213		
56	.821	.642	.463	.284	.104	.925	.746	.566	.388	.209		
57	.820	.641	.461	.282	.102	.923	.743	.563	.384	.205		
58	.820	.641	.460	.281	.100	.920	.741	.560	.381	.201		
59	.819	.640	.459	.279	.098	.918	.738	.557	.377	.197		
60	1.819	3.639	5.458	7.277	9.096	10.916	12.735	14.554	16.374	18.193		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.299
2	4.598
3	6.896
4	9.195
5	11.494
6	13.793
7	16.092
8	18.390
9	20.689
10	22.988

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
38 00	1.819	3.639	5.458	7.277	9.096	10.916	12.735	14.554	16.374	18.193	1	0.000
1	.819	.638	.457	.275	.094	.914	.732	.551	.370	.189	2	.001
2	.818	.637	.456	.273	.092	.911	.729	.548	.366	.185	3	.001
3	.818	.636	.454	.272	.090	.909	.726	.544	.362	.180	4	.003
4	.817	.635	.453	.271	.088	.906	.723	.541	.359	.176	5	.004
5	.817	.634	.452	.269	.086	.904	.720	.538	.355	.172	6	.006
											7	.008
6	.817	.633	.451	.267	.084	.901	.717	.534	.351	.168	8	.010
7	.816	.632	.450	.266	.082	.899	.714	.531	.347	.164	9	.013
8	.816	.631	.448	.264	.080	.896	.711	.528	.344	.159	10	.016
9	.815	.631	.447	.262	.078	.894	.708	.524	.340	.155		
10	1.815	3.630	5.445	7.260	9.075	10.891	12.706	14.521	16.336	18.151		
11	.815	.629	.444	.258	.073	.889	.703	.517	.332	.147		
12	.814	.628	.443	.257	.071	.886	.700	.514	.328	.143		
13	.814	.627	.441	.255	.069	.884	.697	.510	.324	.138		
14	.813	.626	.440	.254	.067	.881	.694	.507	.321	.134		
15	.813	.625	.439	.252	.065	.878	.691	.504	.317	.130		
16	.813	.624	.438	.251	.063	.876	.688	.500	.313	.126		
17	.812	.624	.436	.249	.061	.873	.685	.497	.309	.122		
18	.812	.623	.435	.247	.059	.871	.682	.493	.305	.118		
19	.811	.622	.434	.246	.057	.868	.679	.490	.302	.113		
20	1.811	3.622	5.433	7.244	9.054	10.865	12.676	14.487	16.298	18.109		
21	.811	.621	.432	.242	.052	.863	.673	.484	.294	.105		
22	.810	.620	.430	.241	.050	.860	.670	.480	.290	.101		
23	.810	.619	.429	.239	.048	.858	.667	.477	.287	.097		
24	.809	.618	.428	.237	.046	.855	.664	.474	.284	.092		
25	.809	.617	.427	.236	.044	.853	.661	.470	.280	.088		
26	.809	.616	.425	.234	.042	.850	.658	.467	.276	.084		
27	.808	.615	.424	.232	.040	.847	.655	.463	.272	.080		
28	.808	.614	.423	.231	.038	.845	.652	.460	.268	.076		
29	.807	.614	.421	.229	.036	.843	.650	.457	.264	.071		
30	1.807	3.613	5.420	7.227	9.033	10.840	12.647	14.454	16.260	18.067		
31	.807	.612	.419	.225	.031	.838	.644	.450	.257	.063		
32	.806	.611	.417	.224	.029	.835	.641	.447	.253	.059		
33	.806	.610	.416	.222	.027	.833	.638	.443	.249	.054		
34	.805	.609	.415	.220	.025	.830	.635	.440	.245	.050		
35	.805	.609	.413	.219	.023	.828	.632	.436	.241	.046		
36	.804	.608	.412	.217	.021	.825	.629	.433	.237	.042		
37	.804	.608	.411	.215	.019	.823	.626	.430	.234	.038		
38	.803	.607	.410	.214	.017	.820	.623	.426	.230	.033		
39	.803	.606	.408	.212	.015	.818	.620	.423	.226	.029		
40	1.802	3.605	5.407	7.210	9.012	10.815	12.617	14.420	16.222	18.025		
41	.802	.604	.406	.208	.010	.813	.614	.417	.218	.021		
42	.801	.603	.405	.207	.008	.810	.611	.413	.214	.017		
43	.801	.602	.404	.205	.006	.808	.608	.410	.210	.012		
44	.800	.601	.402	.203	.004	.805	.605	.406	.207	.008		
45	.800	.601	.401	.202	.002	.803	.602	.403	.203	.004		
46	.800	.600	.400	.200	.000	.800	.599	.400	.199	.000		
47	.799	.599	.399	.198	8.998	.798	.596	.396	.195	17.995		
48	.799	.598	.398	.196	.996	.795	.593	.393	.192	.991		
49	.798	.597	.396	.195	.994	.792	.590	.389	.188	.987		
50	1.798	3.596	5.395	7.193	8.991	10.789	12.587	14.386	16.184	17.983		
51	.798	.596	.394	.191	.989	.787	.584	.383	.180	.979		
52	.797	.595	.392	.190	.987	.784	.581	.380	.176	.975		
53	.797	.594	.391	.188	.985	.782	.579	.376	.173	.971		
54	.796	.593	.390	.187	.983	.779	.576	.373	.169	.967		
55	.796	.593	.389	.185	.981	.777	.573	.370	.166	.963		
56	.796	.592	.388	.184	.979	.775	.571	.367	.163	.959		
57	.795	.591	.386	.182	.977	.772	.568	.364	.159	.955		
58	.795	.590	.385	.181	.975	.770	.565	.360	.156	.951		
59	.794	.590	.384	.179	.973	.768	.563	.357	.152	.947		
60	1.794	3.589	5.383	7.177	8.971	10.766	12.560	14.354	16.149	17.943		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.299
2	4.598
3	6.898
4	9.197
5	11.496
6	13.795
7	16.094
8	18.394
9	20.693
10	22.992

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
39 00	1.794	3.589	5.383	7.177	8.971	10.766	12.560	14.354	16.149	17.943	1	0.000
1	.794	.588	.382	.175	.969	.764	.557	.351	.145	.939	2	.001
2	.794	.587	.381	.173	.967	.761	.554	.347	.141	.935	3	.001
3	.793	.586	.379	.172	.965	.759	.551	.344	.137	.930	4	.003
4	.793	.585	.378	.170	.963	.756	.548	.340	.133	.926	5	.004
5	.792	.584	.377	.168	.961	.754	.545	.337	.130	.922	6	.006
											7	.008
6	.792	.583	.376	.166	.959	.751	.542	.333	.126	.917	8	.010
7	.792	.582	.375	.165	.957	.749	.539	.330	.122	.913	9	.013
8	.791	.581	.374	.163	.955	.746	.536	.327	.118	.909	10	.016
9	.791	.581	.372	.162	.953	.743	.533	.323	.114	.904		
10	1.790	3.580	5.370	7.160	8.950	10.740	12.530	14.320	16.110	17.900		
11	.790	.579	.369	.159	.948	.738	.527	.317	.106	.896		
12	.789	.578	.368	.157	.946	.735	.524	.313	.102	.892		
13	.789	.577	.366	.156	.944	.732	.521	.310	.099	.887		
14	.789	.577	.365	.154	.942	.730	.518	.306	.095	.883		
15	.788	.576	.364	.153	.940	.728	.515	.303	.091	.879		
16	.788	.575	.362	.151	.938	.725	.513	.300	.087	.875		
17	.787	.574	.361	.149	.936	.723	.510	.296	.083	.870		
18	.787	.573	.360	.147	.934	.720	.507	.293	.080	.866		
19	.787	.573	.358	.145	.931	.718	.504	.290	.076	.862		
20	1.786	3.572	5.357	7.143	8.929	10.715	12.501	14.286	16.072	17.858		
21	.786	.571	.356	.142	.927	.713	.498	.283	.068	.854		
22	.785	.570	.354	.140	.925	.710	.495	.279	.064	.850		
23	.785	.569	.353	.139	.922	.708	.491	.276	.060	.845		
24	.784	.568	.352	.137	.920	.705	.488	.272	.056	.841		
25	.784	.567	.350	.135	.918	.702	.485	.269	.052	.837		
26	.783	.566	.349	.133	.916	.700	.482	.265	.048	.833		
27	.783	.565	.348	.131	.914	.697	.479	.262	.044	.828		
28	.782	.564	.347	.129	.912	.695	.476	.258	.040	.824		
29	.782	.564	.345	.128	.909	.692	.473	.255	.037	.820		
30	1.781	3.563	5.344	7.126	8.907	10.689	12.470	14.252	16.033	17.815		
31	.781	.562	.343	.124	.905	.687	.467	.248	.029	.811		
32	.780	.561	.341	.123	.903	.684	.464	.245	.026	.807		
33	.780	.560	.340	.121	.901	.682	.462	.241	.022	.802		
34	.780	.559	.339	.119	.899	.679	.459	.238	.018	.798		
35	.779	.558	.338	.117	.897	.677	.456	.235	.015	.794		
36	.779	.558	.337	.116	.895	.674	.453	.231	.011	.790		
37	.778	.557	.335	.114	.893	.672	.450	.228	.007	.786		
38	.778	.556	.334	.113	.891	.669	.447	.224	.004	.781		
39	.778	.555	.333	.111	.888	.667	.444	.221	.000	.777		
40	1.777	3.555	5.332	7.109	8.886	10.664	12.441	14.218	15.996	17.773		
41	.777	.554	.330	.107	.884	.662	.438	.215	.992	.769		
42	.776	.553	.329	.106	.882	.659	.435	.211	.988	.765		
43	.776	.552	.328	.104	.880	.656	.432	.208	.984	.760		
44	.776	.551	.327	.102	.878	.654	.429	.204	.980	.756		
45	.775	.550	.325	.101	.876	.651	.426	.201	.976	.752		
46	.775	.549	.324	.099	.874	.649	.423	.197	.972	.748		
47	.774	.548	.323	.097	.872	.646	.420	.194	.968	.743		
48	.774	.547	.322	.096	.870	.644	.417	.190	.964	.739		
49	.774	.546	.320	.094	.868	.641	.414	.187	.960	.735		
50	1.773	3.546	5.319	7.092	8.865	10.638	12.411	14.184	15.957	17.730		
51	.773	.545	.318	.090	.863	.636	.408	.180	.953	.726		
52	.772	.544	.317	.089	.861	.633	.405	.177	.950	.722		
53	.772	.543	.315	.087	.859	.631	.402	.174	.946	.718		
54	.772	.542	.314	.086	.857	.628	.399	.170	.942	.714		
55	.771	.541	.313	.084	.855	.626	.396	.167	.938	.709		
56	.771	.541	.311	.082	.853	.623	.393	.164	.934	.705		
57	.770	.540	.310	.081	.851	.621	.390	.160	.930	.701		
58	.770	.539	.309	.079	.849	.618	.388	.157	.927	.697		
59	.770	.538	.307	.077	.846	.616	.385	.153	.923	.692		
60	1.769	3.538	5.306	7.075	8.844	10.613	12.382	14.150	15.919	17.688		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.300
2	4.599
3	6.899
4	9.198
5	11.498
6	13.798
7	16.097
8	18.397
9	20.696
10	22.996

TABLE X.—*Co-ordinates for projection of maps.—Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
40 00	1.769	3.538	5.306	7.075	8.844	10.613	12.382	14.150	15.919	17.688	1	0.000
1	.769	.537	.305	.073	.842	.610	.379	.147	.915	.684	2	.001
2	.768	.536	.304	.071	.840	.608	.376	.143	.911	.680	3	.001
3	.768	.535	.302	.070	.838	.605	.373	.140	.907	.675	4	.003
4	.767	.534	.301	.068	.835	.603	.370	.137	.903	.671	5	.004
5	.767	.533	.300	.066	.833	.600	.367	.133	.900	.667	6	.006
											7	.008
6	.766	.532	.298	.065	.831	.598	.364	.130	.896	.662	8	.010
7	.766	.531	.297	.063	.829	.595	.361	.126	.892	.658	9	.013
8	.765	.530	.296	.061	.827	.592	.358	.123	.888	.654	10	.016
9	.765	.530	.295	.060	.824	.590	.354	.120	.884	.650		
10	1.764	3.529	5.293	7.058	8.822	10.587	12.351	14.116	15.880	17.645		
11	.764	.528	.292	.056	.820	.585	.348	.113	.876	.641		
12	.763	.527	.291	.054	.818	.582	.345	.109	.872	.636		
13	.763	.526	.289	.053	.816	.580	.342	.106	.868	.632		
14	.762	.525	.288	.051	.814	.577	.339	.102	.865	.627		
15	.762	.524	.287	.049	.811	.574	.336	.099	.861	.623		
16	.762	.523	.285	.047	.809	.572	.333	.095	.857	.618		
17	.761	.522	.284	.045	.807	.569	.330	.092	.853	.614		
18	.761	.521	.283	.044	.805	.567	.327	.088	.849	.610		
19	.761	.521	.282	.042	.803	.564	.324	.085	.845	.605		
20	1.760	3.520	5.280	7.040	8.800	10.561	12.321	14.081	15.841	17.601		
21	.760	.519	.279	.038	.798	.559	.318	.078	.837	.597		
22	.759	.518	.278	.037	.796	.556	.315	.074	.833	.593		
23	.759	.517	.276	.035	.794	.554	.312	.071	.829	.588		
24	.759	.516	.275	.033	.792	.551	.309	.067	.826	.584		
25	.758	.515	.274	.032	.790	.549	.306	.064	.822	.580		
26	.758	.515	.272	.030	.787	.546	.303	.060	.818	.575		
27	.758	.514	.271	.028	.785	.543	.300	.057	.814	.571		
28	.757	.513	.270	.026	.783	.541	.297	.053	.810	.566		
29	.757	.512	.269	.025	.781	.538	.294	.050	.806	.562		
30	1.756	3.512	5.267	7.023	8.779	10.535	12.291	14.046	15.802	17.558		
31	.756	.511	.266	.021	.777	.532	.288	.043	.798	.554		
32	.755	.510	.265	.020	.775	.529	.285	.039	.794	.549		
33	.755	.509	.264	.018	.773	.527	.282	.036	.790	.545		
34	.754	.508	.262	.016	.771	.524	.279	.032	.786	.540		
35	.754	.507	.261	.015	.769	.522	.275	.029	.782	.536		
36	.753	.506	.260	.013	.767	.519	.272	.025	.779	.531		
37	.753	.505	.258	.012	.765	.517	.269	.022	.775	.527		
38	.752	.504	.257	.010	.763	.514	.266	.018	.771	.522		
39	.752	.504	.256	.008	.760	.511	.263	.015	.767	.518		
40	1.751	3.503	5.254	7.006	8.757	10.508	12.260	14.011	15.763	17.514		
41	.751	.502	.253	.004	.755	.506	.257	.008	.759	.510		
42	.750	.501	.252	.002	.753	.503	.254	.005	.755	.506		
43	.750	.500	.250	.001	.750	.501	.251	.001	.751	.501		
44	.750	.499	.249	6.999	.748	.498	.248	13.998	.747	.497	Latitude interval.	Meridional distances.
45	.749	.498	.248	.997	.746	.496	.245	.994	.744	.493		
46	.749	.497	.246	.996	.744	.493	.242	.991	.740	.488		
47	.748	.496	.245	.994	.742	.491	.239	.987	.736	.484		
48	.748	.495	.244	.992	.739	.488	.236	.984	.732	.480		
49	.748	.494	.242	.990	.737	.486	.233	.980	.728	.476		
50	1.747	3.494	5.241	6.988	8.735	10.483	12.230	13.977	15.724	17.471		
51	.747	.493	.240	.986	.733	.480	.227	.973	.720	.467	′	*Inches.*
52	.746	.492	.238	.985	.731	.477	.224	.970	.716	.463	1	2.300
53	.746	.491	.237	.983	.729	.475	.221	.966	.712	.458	2	4.600
54	.746	.490	.235	.981	.727	.472	.218	.963	.708	.454	3	6.900
55	.745	.489	.234	.980	.725	.469	.215	.959	.704	.449	4	9.200
											5	11.500
56	.745	.488	.233	.978	.722	.467	.212	.956	.700	.445	6	13.800
57	.744	.487	.231	.976	.720	.464	.208	.952	.696	.440	7	16.100
58	.744	.486	.230	.975	.718	.461	.205	.949	.692	.436	8	18.400
59	.744	.486	.229	.973	.716	.459	.202	.946	.688	.431	9	20.700
60	1.743	3.485	5.228	6.971	8.713	10.456	12.199	13.942	15.684	17.427	10	23.000

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
41 00	1.743	3.485	5.228	6.971	8.713	10.456	12.199	13.942	15.684	17.427	1	0.000
1	.743	.484	.227	.969	.711	.453	.196	.938	.680	.423	2	.001
2	.742	.483	.226	.967	.709	.451	.193	.935	.676	.418	3	.001
3	.742	.482	.224	.965	.707	.448	.190	.931	.672	.414	4	.003
4	.741	.482	.223	.964	.704	.446	.187	.928	.668	.409	5	.004
5	.741	.481	.222	.962	.702	.443	.184	.924	.664	.405	6	.006
											7	.008
6	.740	.480	.220	.960	.700	.440	.181	.921	.660	.400	8	.011
7	.740	.479	.219	.959	.698	.438	.178	.917	.656	.396	9	.013
8	.739	.478	.218	.957	.695	.435	.175	.913	.652	.392	10	.017
9	.739	.478	.216	.955	.693	.433	.172	.910	.648	.387		
10	1.738	3.477	5.215	6.953	8.691	10.430	12.168	13.906	15.645	17.383		
11	.738	.476	.214	.951	.689	.427	.165	.903	.641	.379		
12	.738	.475	.213	.950	.687	.424	.162	.899	.637	.374		
13	.737	.474	.211	.948	.685	.422	.159	.896	.633	.370		
14	.737	.473	.210	.946	.682	.419	.156	.892	.629	.365		
15	.736	.472	.209	.945	.680	.416	.153	.889	.625	.361		
16	.736	.471	.208	.943	.678	.413	.150	.885	.621	.356		
17	.736	.470	.206	.942	.676	.411	.147	.882	.617	.352		
18	.735	.469	.205	.940	.673	.408	.144	.878	.613	.348		
19	.735	.469	.204	.938	.671	.405	.140	.875	.609	.343		
20	1.734	3.468	5.202	6.936	8.669	10.403	12.137	13.871	15.605	17.339		
21	.734	.467	.201	.934	.667	.400	.134	.868	.601	.335		
22	.733	.466	.200	.932	.665	.398	.131	.864	.597	.330		
23	.733	.465	.198	.931	.663	.395	.128	.860	.593	.326		
24	.732	.464	.197	.929	.660	.392	.125	.857	.589	.321		
25	.732	.463	.195	.927	.658	.390	.122	.853	.585	.317		
26	.731	.462	.194	.925	.656	.387	.119	.850	.581	.312		
27	.731	.461	.192	.923	.654	.384	.116	.846	.577	.308		
28	.730	.460	.191	.922	.652	.382	.112	.843	.573	.304		
29	.730	.460	.189	.920	.649	.379	.109	.839	.569	.299		
30	1.729	3.459	5.188	6.918	8.647	10.377	12.106	13.836	15.565	17.295		
31	.729	.458	.187	.916	.645	.374	.103	.832	.561	.290		
32	.729	.457	.186	.914	.643	.372	.100	.829	.557	.286		
33	.728	.456	.184	.912	.640	.369	.097	.825	.553	.281		
34	.728	.455	.183	.911	.638	.367	.094	.822	.549	.277		
35	.727	.454	.182	.909	.636	.364	.091	.818	.545	.273		
36	.727	.453	.180	.907	.634	.361	.088	.815	.541	.268		
37	.727	.452	.179	.905	.632	.359	.085	.811	.537	.264		
38	.726	.451	.178	.903	.630	.356	.082	.808	.533	.259		
39	.726	.451	.176	.902	.628	.354	.079	.804	.530	.255		
40	1.725	3.450	5.175	6.900	8.625	10.351	12.076	13.801	15.526	17.251		
41	.725	.449	.174	.898	.623	.348	.073	.797	.522	.246		
42	.724	.448	.173	.896	.621	.346	.070	.794	.518	.242		
43	.724	.447	.172	.895	.618	.343	.066	.790	.514	.237		
44	.724	.446	.170	.893	.616	.340	.063	.787	.510	.233		
45	.723	.445	.169	.891	.614	.338	.060	.783	.506	.228		
46	.723	.444	.167	.889	.612	.335	.057	.779	.502	.224		
47	.722	.443	.166	.887	.610	.332	.053	.776	.498	.219		
48	.722	.442	.165	.886	.607	.330	.050	.772	.494	.215		
49	.722	.442	.163	.884	.605	.327	.047	.769	.490	.210		
50	1.721	3.441	5.162	6.882	8.603	10.324	12.044	13.765	15.485	17.206		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.300
2	4.601
3	6.901
4	9.202
5	11.502
6	13.802
7	16.103
8	18.403
9	20.704
10	23.004

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
50	1.721	3.441	5.162	6.882	8.603	10.324	12.044	13.765	15.485	17.206		
51	.721	.440	.160	.880	.601	.321	.041	.762	.481	.201	1	2.300
52	.720	.439	.159	.878	.598	.319	.038	.758	.477	.197	2	4.601
53	.720	.438	.158	.877	.596	.316	.035	.755	.473	.192	3	6.901
54	.719	.437	.156	.875	.594	.313	.032	.751	.469	.188	4	9.202
55	.719	.436	.155	.873	.592	.311	.028	.748	.465	.183	5	11.502
56	.718	.435	.153	.871	.589	.308	.025	.744	.461	.179	6	13.802
57	.718	.434	.152	.869	.587	.305	.022	.740	.457	.174	7	16.103
58	.717	.433	.150	.868	.585	.303	.019	.737	.453	.170	8	18.403
59	.717	.433	.149	.866	.582	.300	.016	.733	.449	.165	9	20.704
60	1.716	3.432	5.148	6.864	8.580	10.297	12.013	13.729	15.445	17.161	10	23.004

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
42 00	1.716	3.432	5.148	6.864	8.580	10.297	12.013	13.729	15.445	17.161	1	0.000
1	.716	.431	.147	.862	.578	.294	.010	.725	.441	.157	2	.001
2	.716	.430	.146	.860	.576	.291	.007	.722	.437	.152	3	.001
3	.715	.429	.144	.859	.574	.289	.003	.718	.433	.148	4	.003
4	.715	.428	.143	.857	.571	.286	.000	.715	.429	.143	5	.004
5	.714	.427	.142	.855	.569	.283	11.997	.711	.425	.139	6	.006
											7	.008
6	.714	.426	.140	.853	.567	.281	.994	.708	.421	.134	8	.011
7	.714	.425	.139	.851	.565	.278	.991	.704	.417	.130	9	.013
8	.713	.424	.138	.850	.562	.275	.988	.700	.413	.125	10	.017
9	.713	.424	.136	.848	.560	.272	.984	.697	.409	.121		
10	1.712	3.423	5.135	6.846	8.558	10.270	11.981	13.693	15.404	17.116		
11	.712	.422	.133	.844	.556	.267	.978	.690	.400	.112		
12	.711	.421	.132	.842	.553	.264	.975	.686	.396	.107		
13	.711	.420	.130	.840	.551	.262	.972	.683	.392	.103		
14	.710	.419	.129	.839	.549	.259	.969	.679	.388	.098		
15	.710	.418	.128	.837	.547	.256	.966	.676	.384	.094		
16	.709	.417	.126	.835	.544	.253	.963	.672	.380	.089		
17	.709	.416	.125	.833	.542	.251	.960	.669	.376	.085		
18	.708	.415	.123	.831	.540	.248	.956	.665	.372	.080		
19	.708	.415	.122	.830	.537	.245	.953	.661	.368	.076		
20	1.707	3.414	5.121	6.828	8.535	10.243	11.950	13.657	15.364	17.071		
21	.707	.413	.120	.826	.533	.240	.947	.654	.360	.067		
22	.706	.412	.118	.824	.531	.237	.944	.651	.356	.062		
23	.706	.411	.117	.822	.529	.235	.940	.647	.352	.058		
24	.706	.410	.116	.821	.527	.232	.937	.644	.348	.053		
25	.705	.409	.114	.819	.524	.229	.934	.640	.344	.049		
26	.705	.408	.113	.817	.522	.227	.931	.636	.340	.044		
27	.704	.407	.112	.815	.520	.224	.928	.633	.336	.040		
28	.704	.406	.110	.814	.518	.221	.924	.629	.332	.035		
29	.704	.405	.109	.812	.516	.219	.921	.625	.328	.031		
30	1.703	3.405	5.108	6.810	8.513	10.216	11.918	13.621	15.323	17.026		
31	.703	.404	.107	.808	.511	.213	.915	.617	.319	.022		
32	.702	.403	.105	.806	.508	.210	.912	.614	.315	.017		
33	.702	.402	.104	.804	.506	.208	.909	.610	.311	.013		
34	.701	.401	.102	.802	.504	.205	.906	.607	.307	.008		
35	.701	.400	.101	.801	.502	.203	.903	.603	.303	.004		
36	.700	.399	.099	.799	.499	.200	.900	.600	.299	16.999		
37	.700	.398	.098	.797	.497	.197	.897	.596	.295	.995		
38	.699	.397	.096	.795	.495	.194	.894	.592	.291	.990		
39	.699	.397	.095	.794	.492	.192	.890	.589	.287	.986		
40	1.698	3.396	5.094	6.792	8.490	10.189	11.887	13.585	15.283	16.981		
41	.698	.395	.093	.790	.488	.186	.884	.582	.279	.977		
42	.697	.394	.091	.788	.486	.183	.881	.578	.275	.972		
43	.697	.393	.090	.786	.483	.181	.877	.575	.271	.968		
44	.697	.392	.088	.785	.481	.178	.874	.571	.267	.963		
45	.696	.391	.087	.783	.479	.175	.871	.567	.263	.959	Latitude interval.	Meridional distances.
46	.696	.390	.085	.781	.477	.172	.868	.564	.259	.954		
47	.695	.389	.084	.779	.475	.170	.865	.560	.255	.950		
48	.695	.388	.083	.777	.473	.167	.862	.557	.251	.945		
49	.695	.387	.082	.776	.470	.165	.859	.553	.247	.941		
50	1.694	3.387	5.081	6.774	8.468	10.162	11.855	13.549	15.242	16.936		
51	.694	.386	.079	.772	.466	.159	.852	.545	.238	.932	′	*Inches.*
52	.693	.385	.078	.770	.464	.156	.849	.541	.234	.927	1	2.301
53	.693	.384	.076	.768	.461	.153	.845	.537	.230	.923	2	4.602
54	.692	.383	.075	.767	.459	.151	.842	.534	.226	.918	3	6.902
55	.692	.382	.073	.765	.457	.148	.839	.530	.222	.914	4	9.203
											5	11.504
56	.691	.381	.072	.763	.454	.145	.836	.526	.218	.909	6	13.805
57	.691	.380	.071	.761	.452	.142	.833	.522	.214	.905	7	16.106
58	.690	.379	.069	.759	.450	.139	.830	.519	.210	.900	8	18.406
59	.690	.379	.068	.758	.447	.137	.826	.515	.206	.895	9	20.707
60	1.689	3.378	5.067	6.756	8.445	10.134	11.823	13.512	15.201	16.890	10	23.008

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
43 00	1.689	3.378	5.067	6.756	8.445	10.134	11.823	13.512	15.201	16.890	1	0.000
1	.689	.377	.066	.754	.443	.131	.820	.508	.197	.885	2	.001
2	.688	.376	.064	.752	.441	.128	.817	.504	.193	.881	3	.001
3	.688	.375	.063	.751	.438	.126	.813	.501	.189	.876	4	.003
4	.687	.374	.061	.749	.436	.123	.810	.497	.185	.872	5	.004
5	.687	.373	.060	.747	.434	.120	.807	.493	.181	.867	6	.006
											7	.008
6	.686	.372	.058	.745	.431	.117	.804	.490	.177	.863	8	.011
7	.686	.371	.057	.743	.429	.114	.801	.486	.173	.858	9	.013
8	.685	.370	.056	.742	.427	.111	.797	.482	.169	.854	10	.017
9	.685	.370	.054	.740	.425	.109	.794	.479	.165	.849		
10	1.684	3.369	5.053	6.738	8.422	10.106	11.791	13.475	15.160	16.844		
11	.684	.368	.051	.736	.420	.103	.788	.471	.156	.840		
12	.683	.367	.050	.734	.418	.100	.785	.467	.152	.835		
13	.683	.366	.048	.732	.415	.098	.782	.464	.147	.831		
14	.683	.365	.047	.730	.413	.095	.778	.460	.143	.826		
15	.682	.364	.045	.728	.411	.092	.775	.456	.139	.822		
16	.682	.363	.044	.726	.408	.090	.772	.453	.135	.817		
17	.681	.362	.042	.724	.406	.087	.769	.449	.131	.813		
18	.681	.361	.041	.722	.404	.084	.765	.445	.126	.808		
19	.681	.361	.040	.720	.402	.082	.762	.442	.122	.803		
20	1.680	3.360	5.039	6.719	8.399	10.079	11.759	13.438	15.118	16.798		
21	.680	.359	.037	.717	.397	.076	.756	.434	.114	.794		
22	.679	.358	.036	.715	.395	.073	.753	.430	.110	.789		
23	.679	.357	.035	.714	.392	.070	.749	.427	.106	.785		
24	.678	.356	.033	.712	.390	.068	.746	.423	.102	.780		
25	.678	.355	.032	.710	.388	.065	.743	.420	.098	.776		
26	.677	.354	.031	.708	.385	.063	.739	.416	.093	.771		
27	.677	.353	.029	.706	.383	.060	.736	.413	.089	.767		
28	.676	.352	.028	.704	.381	.057	.733	.409	.085	.762		
29	.676	.351	.027	.703	.378	.054	.729	.406	.081	.757		
30	1.675	3.350	5.026	6.701	8.376	10.051	11.726	13.402	15.077	16.752		
31	.675	.349	.024	.699	.374	.048	.723	.398	.073	.748		
32	.674	.348	.023	.697	.372	.045	.720	.394	.069	.743		
33	.674	.347	.021	.695	.369	.043	.716	.391	.065	.739		
34	.674	.346	.020	.693	.367	.040	.713	.387	.061	.734		
35	.673	.345	.018	.691	.365	.037	.710	.383	.057	.730		
36	.673	.344	.017	.689	.363	.034	.707	.380	.053	.725		
37	.672	.343	.015	.687	.360	.032	.704	.376	.049	.721		
38	.672	.342	.014	.685	.358	.029	.700	.372	.045	.716		
39	.672	.342	.013	.683	.356	.026	.697	.369	.040	.711		
40	1.671	3.341	5.012	6.682	8.353	10.024	11.694	13.365	15.035	16.706		
41	.671	.340	.010	.680	.351	.021	.691	.361	.031	.702		
42	.670	.339	.009	.678	.349	.018	.688	.357	.027	.697		
43	.670	.338	.007	.677	.346	.015	.684	.354	.023	.693		
44	.669	.337	.006	.675	.344	.013	.681	.350	.019	.688		
45	.669	.336	.004	.673	.342	.010	.678	.347	.015	.684		
46	.668	.335	.003	.671	.339	.008	.675	.343	.011	.679		
47	.668	.334	.002	.669	.337	.005	.672	.340	.007	.674		
48	.667	.333	.000	.667	.335	.002	.668	.336	.003	.670		
49	.667	.332	4.999	.666	.333	9.999	.665	.332	14.998	.665		
50	1.666	3.332	4.998	6.664	8.330	9.996	11.662	13.328	14.994	16.660		
51	.666	.331	.996	.662	.328	.993	.659	.324	.990	.655		
52	.665	.330	.995	.660	.325	.990	.656	.320	.986	.650		
53	.665	.329	.993	.658	.323	.988	.652	.316	.981	.646		
54	.664	.328	.992	.656	.320	.985	.649	.313	.977	.641		
55	.664	.327	.991	.654	.318	.982	.646	.309	.973	.636		
56	.663	.326	.989	.652	.315	.979	.642	.305	.969	.632		
57	.663	.325	.988	.650	.313	.976	.639	.301	.965	.627		
58	.662	.324	.986	.648	.310	.974	.636	.297	.960	.623		
59	.662	.323	.985	.646	.308	.971	.632	.294	.956	.618		
60	1.661	3.323	4.984	6.645	8.306	9.968	11.629	13.290	14.952	16.613		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.301
2	4.602
3	6.904
4	9.205
5	11.506
6	13.807
7	16.108
8	18.410
9	20.711
10	23.012

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31\,680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
44 00	1.661	3.323	4.984	6.645	8.306	9.968	11.629	13.290	14.952	16.613	1	0.000
1	.661	.322	.983	.643	.304	.965	.626	.286	.948	.608	2	.001
2	.660	.321	.982	.641	.302	.962	.623	.282	.944	.603	3	.001
3	.660	.320	.980	.639	.299	.960	.619	.279	.939	.599	4	.003
4	.660	.319	.979	.637	.297	.957	.616	.275	.935	.594	5	.004
5	.659	.318	.978	.635	.295	.954	.613	.271	.931	.589	6	.006
											7	.008
6	.659	.317	.976	.633	.292	.951	.609	.268	.926	.585	8	.011
7	.658	.316	.975	.631	.290	.949	.606	.264	.922	.580	9	.013
8	.658	.315	.973	.629	.287	.946	.603	.260	.918	.576	10	.017
9	.658	.314	.972	.627	.285	.943	.599	.257	.913	.571		
10	1.657	3.313	4.970	6.626	8.283	9.940	11.596	13.253	14.909	16.566		
11	.657	.312	.969	.624	.281	.937	.593	.249	.905	.561		
12	.656	.311	.967	.622	.278	.934	.590	.245	.901	.557		
13	.656	.310	.966	.621	.276	.931	.586	.241	.897	.552		
14	.655	.309	.964	.619	.274	.928	.583	.238	.892	.547		
15	.655	.308	.963	.617	.271	.925	.580	.234	.888	.543		
16	.654	.307	.962	.615	.269	.922	.576	.230	.884	.538		
17	.654	.306	.960	.613	.267	.919	.573	.226	.880	.533		
18	.653	.305	.959	.612	.264	.916	.569	.222	.875	.529		
19	.653	.304	.957	.610	.262	.913	.566	.219	.871	.524		
20	1.652	3.304	4.956	6.608	8.259	9.911	11.563	13.215	14.867	16.519		
21	.652	.303	.954	.606	.257	.908	.560	.211	.863	.514		
22	.651	.302	.953	.604	.255	.905	.557	.207	.859	.510		
23	.651	.301	.951	.602	.252	.903	.553	.203	.855	.505		
24	.650	.300	.950	.600	.250	.900	.550	.200	.850	.500		
25	.650	.299	.949	.598	.247	.897	.547	.196	.846	.496		
26	.649	.298	.947	.596	.245	.894	.543	.193	.842	.491		
27	.649	.297	.946	.595	.243	.891	.539	.189	.838	.486		
28	.648	.296	.944	.593	.240	.889	.536	.185	.833	.481		
29	.648	.295	.943	.591	.238	.886	.533	.181	.829	.477		
30	1.647	3.294	4.942	6.589	8.236	9.883	11.530	13.178	14.825	16.472		
31	.647	.293	.940	.587	.234	.880	.527	.174	.821	.467		
32	.646	.292	.939	.585	.231	.877	.524	.170	.817	.463		
33	.646	.291	.937	.583	.229	.875	.520	.166	.812	.458		
34	.645	.290	.936	.581	.226	.872	.517	.163	.808	.453		
35	.645	.289	.934	.579	.224	.869	.514	.159	.804	.449		
36	.644	.288	.933	.577	.221	.866	.510	.155	.799	.444		
37	.644	.287	.931	.575	.219	.864	.507	.151	.795	.439		
38	.643	.286	.930	.573	.217	.861	.504	.148	.791	.434		
39	.643	.285	.928	.572	.214	.858	.500	.144	.786	.430		
40	1.642	3.285	4.927	6.570	8.212	9.855	11.497	13.140	14.782	16.425		
41	.642	.284	.925	.568	.210	.852	.494	.136	.778	.420		
42	.641	.283	.924	.566	.208	.849	.491	.132	.774	.416		
43	.641	.282	.922	.564	.205	.846	.488	.128	.770	.411		
44	.641	.281	.921	.562	.203	.844	.484	.124	.765	.406		
45	.640	.280	.920	.560	.201	.841	.481	.121	.761	.402		
46	.640	.279	.918	.558	.198	.838	.478	.117	.757	.397		
47	.639	.278	.917	.556	.196	.835	.475	.113	.753	.392		
48	.639	.277	.915	.554	.193	.833	.471	.109	.748	.388		
49	.639	.277	.914	.552	.191	.830	.468	.106	.744	.383		
50	1.638	3.276	4.913	6.551	8.189	9.827	11.465	13.102	14.740	16.378		
51	.638	.275	.912	.549	.187	.824	.462	.098	.736	.374		
52	.637	.274	.910	.547	.185	.821	.459	.094	.732	.369		
53	.637	.273	.909	.545	.182	.819	.455	.090	.728	.364		
54	.636	.272	.908	.544	.180	.816	.452	.087	.724	.360		
55	.636	.271	.906	.542	.177	.813	.448	.083	.720	.355		
56	.635	.270	.905	.540	.175	.810	.445	.079	.716	.351		
57	.635	.269	.904	.538	.173	.807	.441	.075	.712	.346		
58	.634	.268	.902	.536	.170	.805	.438	.072	.708	.342		
59	.634	.267	.901	.535	.168	.802	.435	.069	.704	.337		
60	1.633	3.266	4.900	6.533	8.166	9.799	11.432	13.066	14.699	16.332		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.302
2	4.603
3	6.905
4	9.206
5	11.508
6	13.810
7	16.111
8	18.413
9	20.714
10	23.016

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
45 00	1.633	3.266	4.900	6.533	8.166	9.799	11.432	13.066	14.699	16.332	1	0.000
1	.633	.265	.899	.531	.164	.796	.429	.062	.695	.328	2	.001
2	.632	.264	.897	.529	.162	.793	.426	.058	.691	.323	3	.001
3	.632	.263	.896	.527	.160	.790	.422	.054	.686	.319	4	.003
4	.631	.262	.894	.525	.157	.787	.419	.050	.682	.314	5	.004
5	.631	.261	.893	.523	.155	.784	.416	.046	.678	.310	6	.006
											7	.008
6	.630	.260	.891	.521	.153	.781	.412	.042	.673	.305	8	.011
7	.630	.259	.890	.520	.150	.778	.409	.038	.669	.300	9	.013
8	.629	.258	.888	.518	.148	.775	.406	.034	.665	.295	10	.017
9	.629	.258	.887	.516	.145	.772	.403	.030	.660	.290		
10	1.628	3.257	4.885	6.514	8.142	9.770	11.399	13.027	14.656	16.284		
11	.628	.256	.884	.512	.140	.767	.396	.023	.652	.279		
12	.627	.255	.883	.510	.137	.764	.392	.019	.648	.274		
13	.627	.254	.881	.508	.135	.761	.389	.016	.643	.270		
14	.627	.253	.880	.506	.132	.759	.385	.012	.639	.265		
15	.626	.252	.878	.504	.130	.756	.382	.008	.634	.260		
16	.626	.251	.877	.502	.128	.753	.378	.004	.630	.255		
17	.625	.250	.875	.500	.125	.750	.375	.000	.625	.250		
18	.625	.249	.874	.498	.123	.747	.371	12.997	.621	.246		
19	.625	.248	.872	.496	.120	.744	.368	.993	.616	.241		
20	1.624	3.247	4.871	6.494	8.118	9.742	11.365	12.989	14.612	16.236		
21	.624	.246	.869	.492	.115	.739	.362	.985	.608	.231		
22	.623	.245	.868	.490	.113	.736	.359	.981	.603	.226		
23	.623	.244	.866	.488	.110	.733	.355	.977	.599	.221		
24	.622	.243	.865	.486	.108	.730	.352	.973	.594	.217		
25	.622	.242	.863	.484	.106	.727	.349	.970	.590	.212		
26	.621	.241	.862	.482	.103	.724	.345	.966	.585	.207		
27	.621	.240	.860	.480	.101	.721	.342	.962	.581	.202		
28	.620	.239	.859	.478	.098	.718	.339	.958	.577	.198		
29	.620	.239	.857	.476	.096	.715	.335	.954	.573	.193		
30	1.619	3.238	4.856	6.475	8.094	9.713	11.332	12.950	14.569	16.188		
31	.619	.237	.854	.473	.092	.710	.329	.946	.565	.183		
32	.618	.236	.853	.471	.089	.707	.325	.942	.561	.178		
33	.618	.235	.851	.469	.087	.704	.322	.939	.556	.173		
34	.617	.234	.850	.468	.084	.701	.318	.935	.552	.169		
35	.617	.233	.848	.466	.082	.698	.315	.931	.548	.164		
36	.616	.232	.847	.464	.080	.695	.311	.927	.543	.159		
37	.616	.231	.845	.462	.077	.692	.308	.923	.539	.154		
38	.615	.230	.844	.460	.075	.689	.304	.920	.534	.150		
39	.615	.229	.843	.458	.072	.686	.301	.916	.530	.145		
40	1.614	3.228	4.842	6.456	8.070	9.684	11.298	12.912	14.526	16.140		
41	.614	.227	.840	.454	.068	.681	.294	.908	.522	.135		
42	.613	.226	.839	.452	.065	.678	.291	.904	.517	.130		
43	.613	.225	.837	.450	.063	.675	.287	.900	.513	.126		
44	.612	.224	.836	.448	.060	.672	.284	.897	.508	.121		
45	.612	.223	.834	.447	.058	.669	.281	.893	.504	.116		
46	.611	.222	.833	.445	.056	.666	.277	.889	.500	.111		
47	.611	.221	.832	.443	.053	.663	.274	.885	.495	.106		
48	.610	.220	.830	.441	.051	.660	.270	.881	.491	.102		
49	.610	.219	.829	.439	.048	.657	.267	.877	.487	.097		
50	1.609	3.218	4.828	6.437	8.046	9.655	11.264	12.874	14.483	16.092		
51	.609	.217	.826	.435	.044	.652	.261	.870	.479	.087		
52	.608	.216	.825	.433	.041	.649	.257	.866	.475	.082		
53	.608	.215	.823	.431	.039	.646	.254	.863	.470	.078		
54	.607	.214	.822	.429	.036	.643	.251	.859	.466	.073		
55	.607	.213	.820	.427	.034	.640	.247	.855	.462	.068		
56	.606	.212	.819	.426	.032	.637	.244	.851	.457	.064		
57	.606	.211	.817	.424	.029	.634	.241	.847	.453	.059		
58	.605	.210	.816	.422	.027	.631	.237	.844	.448	.054		
59	.605	.210	.814	.420	.024	.629	.234	.840	.444	.050		
60	1.604	3.209	4.813	6.418	8.022	9.627	11.231	12.836	14.440	16.045		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.302
2	4.604
3	6.906
4	9.208
5	11.510
6	13.812
7	16.114
8	18.416
9	20.718
10	23.020

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
46 00	1.604	3.209	4.813	6.418	8.022	9.627	11.231	12.836	14.440	16.045	1	0.000
1	.604	.208	.812	.416	.020	.624	.227	.832	.436	.040	2	.001
2	.603	.207	.811	.414	.017	.621	.224	.828	.431	.035	3	.001
3	.603	.206	.809	.412	.015	.618	.220	.824	.427	.030	4	.003
4	.603	.205	.808	.410	.012	.615	.217	.820	.422	.025	5	.004
5	.602	.204	.807	.408	.010	.612	.214	.816	.418	.020	6	.006
											7	.008
6	.602	.203	.805	.406	.008	.609	.210	.812	.414	.015	8	.011
7	.602	.202	.804	.404	.005	.606	.207	.808	.409	.010	9	.013
8	.601	.201	.802	.402	.003	.603	.204	.804	.405	.005	10	.017
9	.601	.200	.801	.400	.000	.600	.200	.800	.400	.000		
10	1.600	3.199	4.799	6.398	7.998	9.598	11.197	12.797	14.396	15.996		
11	.600	.198	.798	.396	.996	.595	.194	.793	.392	.991		
12	.599	.197	.796	.394	.994	.592	.191	.789	.388	.986		
13	.599	.196	.795	.392	.991	.589	.187	.785	.383	.981		
14	.598	.195	.793	.390	.989	.586	.184	.781	.379	.977		
15	.598	.194	.792	.388	.986	.583	.181	.777	.375	.972		
16	.597	.193	.790	.386	.984	.580	.177	.773	.370	.967		
17	.597	.192	.789	.384	.981	.577	.174	.770	.366	.962		
18	.596	.191	.787	.382	.979	.574	.171	.766	.362	.958		
19	.596	.191	.786	.380	.976	.571	.168	.762	.357	.953		
20	1.595	3.190	4.784	6.379	7.974	9.569	11.164	12.758	14.353	15.948		
21	.595	.189	.783	.377	.972	.566	.161	.754	.349	.943		
22	.594	.188	.781	.375	.969	.563	.158	.750	.344	.938		
23	.594	.187	.780	.373	.967	.560	.154	.746	.340	.933		
24	.593	.186	.779	.371	.964	.557	.151	.742	.335	.928		
25	.593	.185	.777	.369	.962	.554	.147	.739	.331	.923		
26	.592	.184	.776	.367	.959	.551	.144	.735	.327	.918		
27	.592	.183	.774	.365	.957	.548	.140	.731	.322	.913		
28	.591	.182	.773	.363	.954	.545	.137	.727	.318	.908		
29	.591	.181	.771	.361	.952	.542	.133	.723	.313	.903		
30	1.590	3.180	4.770	6.360	7.950	9.539	11.129	12.719	14.309	15.899		
31	.590	.179	.768	.358	.948	.536	.126	.715	.305	.894		
32	.589	.178	.767	.356	.945	.533	.123	.711	.301	.889		
33	.589	.177	.765	.354	.943	.531	.120	.707	.296	.885		
34	.588	.176	.764	.352	.940	.528	.116	.704	.292	.880		
35	.588	.175	.762	.350	.938	.525	.113	.700	.288	.875		
36	.587	.174	.761	.348	.935	.522	.110	.696	.283	.870		
37	.587	.173	.759	.346	.933	.519	.106	.692	.279	.865		
38	.586	.172	.758	.344	.930	.517	.103	.689	.275	.861		
39	.586	.171	.756	.342	.928	.514	.100	.685	.270	.856		
40	1.585	3.170	4.755	6.340	7.926	9.511	11.096	12.681	14.266	15.851		
41	.585	.169	.753	.338	.923	.508	.093	.677	.262	.846		
42	.584	.168	.752	.336	.921	.505	.089	.673	.257	.841		
43	.584	.167	.750	.334	.918	.502	.086	.669	.253	.836		
44	.583	.166	.749	.332	.916	.499	.082	.665	.248	.831		
45	.583	.165	.747	.330	.913	.496	.079	.662	.244	.826		
46	.582	.164	.746	.328	.911	.493	.075	.658	.240	.821		
47	.582	.163	.745	.326	.908	.490	.072	.654	.235	.816		
48	.581	.162	.743	.324	.906	.487	.068	.650	.231	.811		
49	.581	.161	.742	.322	.903	.484	.065	.646	.226	.806		
50	1.580	3.160	4.741	6.321	7.901	9.481	11.061	12.642	14.222	15.802		
51	.580	.159	.739	.319	.899	.478	.058	.638	.218	.797		
52	.579	.158	.738	.317	.896	.475	.054	.634	.214	.792		
53	.579	.157	.736	.315	.894	.472	.051	.630	.209	.788		
54	.578	.156	.735	.313	.891	.470	.048	.626	.205	.783		
55	.578	.155	.733	.311	.889	.467	.045	.622	.201	.778		
56	.577	.154	.732	.309	.886	.464	.041	.619	.196	.773		
57	.577	.153	.730	.307	.884	.461	.038	.615	.192	.768		
58	.576	.152	.729	.305	.881	.458	.035	.611	.188	.764		
59	.576	.152	.727	.303	.879	.455	.031	.607	.183	.759		
60	1.575	3.151	4.726	6.302	7.877	9.452	11.028	12.603	14.179	15.754		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.302
2	4.605
3	6.907
4	9.210
5	11.512
6	13.814
7	16.117
8	18.419
9	20.722
10	23.024

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
47 00	1.575	3.151	4.726	6.302	7.877	9.452	11.028	12.603	14.179	15.754	1	0.000
1	.575	.150	.724	.300	.874	.449	.024	.599	.175	.749	2	.001
2	.574	.149	.723	.298	.872	.446	.021	.595	.170	.744	3	.001
3	.574	.148	.721	.296	.869	.443	.017	.591	.166	.739	4	.003
4	.573	.147	.720	.294	.867	.440	.014	.587	.161	.734	5	.004
5	.573	.146	.718	.292	.864	.437	.010	.583	.157	.729	6	.006
											7	.008
6	.572	.145	.717	.290	.862	.434	.007	.579	.152	.724	8	.011
7	.572	.144	.715	.288	.859	.431	.003	.575	.148	.719	9	.013
8	.571	.143	.714	.286	.857	.428	.000	.571	.143	.714	10	.017
9	.571	.142	.712	.284	.854	.425	10.996	.567	.139	.709		
10	1.570	3.141	4.711	6.282	7.852	9.422	10.993	12.563	14.134	15.704		
11	.570	.140	.709	.280	.849	.419	.989	.559	.130	.699		
12	.569	.139	.708	.278	.847	.416	.986	.555	.125	.694		
13	.569	.138	.706	.276	.844	.413	.982	.551	.121	.689		
14	.568	.137	.705	.274	.842	.410	.979	.547	.116	.684		
15	.568	.136	.703	.272	.839	.407	.975	.543	.112	.679		
16	.567	.135	.702	.270	.837	.404	.972	.539	.107	.674		
17	.567	.134	.700	.268	.834	.401	.968	.535	.103	.669		
18	.566	.133	.699	.266	.832	.398	.965	.531	.098	.664		
19	.566	.132	.697	.264	.829	.395	.961	.527	.094	.659		
20	1.565	3.131	4.696	6.262	7.827	9.393	10.958	12.524	14.089	15.655		
21	.565	.130	.694	.260	.824	.390	.954	.520	.085	.650		
22	.564	.129	.693	.258	.822	.387	.951	.516	.080	.645		
23	.564	.128	.691	.256	.819	.384	.947	.512	.076	.640		
24	.563	.127	.690	.254	.817	.381	.944	.508	.071	.635		
25	.563	.126	.688	.252	.814	.378	.940	.504	.067	.630		
26	.562	.125	.687	.250	.812	.375	.937	.500	.062	.625		
27	.562	.124	.685	.248	.809	.372	.933	.496	.058	.620		
28	.561	.123	.684	.246	.807	.369	.930	.492	.053	.615		
29	.561	.122	.682	.244	.804	.366	.926	.488	.049	.610		
30	1.560	3.121	4.681	6.242	7.802	9.363	10.923	12.484	14.044	15.605		
31	.560	.120	.679	.240	.799	.360	.919	.480	.040	.600		
32	.559	.119	.678	.238	.796	.357	.916	.476	.035	.595		
33	.559	.118	.676	.236	.794	.354	.912	.472	.031	.590		
34	.559	.117	.675	.234	.792	.351	.909	.468	.026	.585		
35	.558	.116	.673	.232	.789	.348	.905	.464	.022	.580		
36	.558	.115	.672	.230	.787	.345	.902	.460	.017	.575		
37	.557	.114	.670	.228	.784	.342	.899	.456	.013	.570		
38	.557	.113	.669	.226	.782	.339	.895	.452	.009	.565		
39	.557	.112	.668	.224	.780	.336	.892	.448	.004	.560		
40	1.556	3.111	4.667	6.222	7.778	9.334	10.889	12.445	14.000	15.556		
41	.556	.110	.665	.220	.775	.331	.885	.441	13.995	.551		
42	.555	.109	.664	.218	.773	.328	.882	.437	.991	.546		
43	.555	.108	.662	.216	.770	.325	.878	.433	.986	.541		
44	.554	.107	.661	.214	.768	.322	.875	.429	.982	.536		
45	.554	.106	.659	.212	.765	.319	.871	.425	.977	.531		
46	.553	.105	.658	.210	.763	.316	.868	.421	.973	.526	Latitude interval.	Meridional distances.
47	.553	.104	.656	.208	.760	.313	.864	.417	.968	.521		
48	.552	.103	.655	.206	.758	.310	.861	.413	.964	.516		
49	.552	.102	.653	.204	.755	.307	.857	.409	.959	.511		
50	1.551	3.101	4.652	6.202	7.753	9.304	10.854	12.405	13.955	15.506		
											′	*Inches.*
51	.551	.100	.650	.200	.750	.301	.850	.401	.951	.501		
52	.550	.099	.649	.198	.748	.298	.847	.397	.946	.496	1	2.303
53	.550	.098	.647	.196	.745	.295	.844	.393	.942	.491	2	4.606
54	.549	.097	.646	.194	.743	.292	.840	.389	.938	.486	3	6.908
55	.549	.096	.644	.192	.740	.289	.837	.385	.933	.481	4	9.211
											5	11.514
56	.548	.095	.643	.190	.738	.286	.833	.381	.929	.476	6	13.817
57	.548	.094	.641	.188	.735	.283	.830	.377	.924	.471	7	16.120
58	.547	.093	.640	.186	.733	.280	.827	.373	.920	.466	8	18.422
59	.547	.092	.638	.184	.730	.277	.823	.369	.915	.461	9	20.725
60	1.546	3.091	4.637	6.183	7.728	9.274	10.820	12.366	13.911	15.457	10	23.028

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
48 00	1.546	3.091	4.637	6.183	7.728	9.274	10.820	12.366	13.911	15.457	1	0.000
1	.546	.090	.636	.181	.725	.271	.817	.362	.907	.452	2	.001
2	.545	.089	.634	.179	.723	.268	.813	.358	.902	.447	3	.001
3	.545	.088	.633	.177	.720	.265	.810	.354	.898	.442	4	.003
4	.544	.087	.631	.175	.718	.262	.806	.350	.893	.437	5	.004
5	.544	.086	.630	.173	.715	.259	.803	.346	.889	.432	6	.006
											7	.008
6	.543	.085	.628	.171	.713	.256	.799	.342	.884	.427	8	.011
7	.543	.084	.627	.169	.710	.253	.796	.338	.880	.422	9	.013
8	.542	.083	.625	.167	.708	.250	.792	.334	.875	.417	10	.017
9	.542	.082	.624	.165	.705	.247	.789	.330	.871	.412		
10	1.541	3.081	4.622	6.163	7.703	9.244	10.785	12.326	13.866	15.407		
11	.541	.080	.621	.161	.700	.241	.782	.322	.862	.402		
12	.540	.079	.619	.159	.698	.238	.778	.318	.857	.397		
13	.540	.078	.618	.157	.695	.235	.775	.314	.853	.392		
14	.539	.077	.616	.155	.693	.232	.771	.310	.848	.387		
15	.539	.076	.615	.153	.690	.229	.768	.306	.844	.382		
16	.538	.075	.614	.151	.688	.226	.764	.302	.839	.377		
17	.538	.074	.612	.149	.685	.223	.761	.298	.835	.372		
18	.537	.073	.611	.147	.683	.220	.757	.294	.830	.367		
19	.537	.072	.609	.145	.680	.217	.754	.290	.826	.362		
20	1.536	3.071	4.607	6.143	7.678	9.214	10.750	12.286	13.821	15.357		
21	.536	.070	.606	.141	.675	.211	.747	.282	.817	.352		
22	.535	.069	.604	.139	.673	.208	.743	.278	.812	.347		
23	.535	.068	.603	.137	.670	.205	.740	.274	.808	.342		
24	.534	.067	.601	.135	.668	.202	.736	.270	.803	.337		
25	.534	.066	.600	.133	.665	.199	.733	.266	.798	.332		
26	.533	.065	.598	.131	.663	.196	.729	.262	.794	.327		
27	.533	.064	.597	.129	.660	.193	.726	.258	.789	.322		
28	.532	.063	.595	.127	.658	.190	.722	.254	.785	.317		
29	.532	.062	.594	.125	.655	.187	.719	.250	.780	.312		
30	1.531	3.061	4.592	6.123	7.653	9.184	10.715	12.246	13.776	15.307		
31	.531	.060	.591	.121	.650	.181	.712	.242	.771	.302		
32	.530	.059	.589	.119	.648	.178	.708	.238	.767	.297		
33	.530	.058	.588	.117	.645	.175	.705	.234	.762	.292		
34	.529	.057	.586	.115	.643	.172	.701	.230	.758	.287		
35	.529	.056	.585	.113	.640	.169	.698	.226	.753	.282		
36	.528	.055	.583	.111	.638	.166	.694	.222	.749	.277		
37	.528	.054	.582	.109	.635	.163	.691	.218	.744	.272		
38	.527	.053	.580	.107	.633	.160	.687	.214	.740	.267		
39	.527	.052	.579	.105	.630	.157	.683	.210	.735	.262		
40	1.526	3.051	4.577	6.103	7.628	9.154	10.680	12.206	13.731	15.257		
41	.526	.050	.576	.101	.625	.151	.676	.202	.726	.252		
42	.525	.049	.574	.099	.623	.148	.673	.198	.722	.247		
43	.525	.048	.573	.097	.620	.145	.669	.194	.717	.242		
44	.524	.047	.571	.095	.618	.142	.666	.190	.713	.237		
45	.524	.046	.570	.093	.615	.139	.662	.186	.708	.232		
46	.523	.045	.568	.091	.613	.136	.659	.182	.704	.227		
47	.523	.044	.567	.089	.610	.133	.655	.178	.699	.222		
48	.522	.043	.565	.087	.608	.130	.652	.174	.695	.217		
49	.522	.042	.564	.085	.605	.127	.648	.170	.690	.212		
50	1.521	3.041	4.562	6.083	7.603	9.124	10.645	12.166	13.686	15.207		
51	.521	.040	.561	.081	.600	.121	.641	.162	.681	.202		
52	.520	.039	.559	.079	.598	.118	.638	.158	.677	.197		
53	.520	.038	.558	.077	.595	.115	.634	.154	.672	.192		
54	.519	.037	.556	.075	.593	.112	.631	.150	.668	.187		
55	.519	.036	.555	.073	.590	.109	.627	.146	.663	.182		
56	.518	.035	.553	.071	.588	.106	.623	.142	.658	.177		
57	.518	.034	.552	.069	.585	.103	.620	.138	.654	.172		
58	.517	.033	.550	.067	.583	.100	.616	.134	.649	.167		
59	.517	.032	.549	.065	.580	.097	.613	.130	.645	.162		
60	1.516	3.031	4.547	6.062	7.578	9.094	10.609	12.125	13.640	15.156		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.303
2	4.606
3	6.910
4	9.213
5	11.516
6	13.819
7	16.122
8	18.426
9	20.729
10	23.032

TABLE X.—*Co-ordinates for projection of maps. Scale* $\frac{1}{31680}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
49 00	1.516	3.031	4.547	6.062	7.578	9.094	10.609	12.125	13.640	15.156	1	0.000
1	.516	.030	.545	.060	.575	.091	.606	.121	.635	.151	2	.001
2	.515	.029	.544	.058	.573	.088	.602	.117	.631	.146	3	.001
3	.515	.028	.542	.056	.570	.085	.599	.113	.626	.141	4	.003
4	.514	.027	.541	.054	.568	.082	.595	.109	.622	.136	5	.004
5	.514	.026	.539	.052	.565	.079	.592	.105	.617	.130	6	.006
											7	.008
6	.513	.025	.538	.050	.563	.076	.588	.101	.613	.125	8	.011
7	.513	.024	.536	.048	.560	.073	.585	.097	.608	.120	9	.013
8	.512	.023	.535	.046	.558	.070	.581	.092	.604	.115	10	.017
9	.512	.022	.533	.044	.555	.066	.578	.088	.599	.110		
10	1.511	3.021	4.532	6.042	7.553	9.063	10.574	12.084	13.595	15.105		
11	.511	.020	.530	.040	.550	.060	.571	.080	.590	.100		
12	.510	.019	.529	.038	.548	.057	.567	.076	.586	.095		
13	.510	.018	.527	.036	.545	.054	.564	.072	.581	.090		
14	.509	.017	.526	.034	.543	.051	.560	.067	.576	.085		
15	.508	.016	.524	.032	.540	.047	.557	.063	.572	.079		
16	.508	.015	.523	.030	.537	.044	.553	.059	.567	.074		
17	.507	.014	.521	.028	.534	.041	.549	.055	.563	.069		
18	.507	.013	.520	.026	.532	.038	.546	.051	.558	.064		
19	.506	.012	.518	.024	.529	.035	.542	.047	.554	.059		
20	1.505	3.011	4.516	6.022	7.527	9.032	10.538	12.043	13.549	15.054		
21	.505	.010	.515	.020	.524	.029	.535	.039	.544	.049		
22	.504	.009	.513	.018	.521	.026	.531	.035	.540	.044		
23	.504	.008	.512	.016	.519	.023	.528	.030	.535	.039		
24	.503	.007	.510	.014	.516	.020	.524	.026	.531	.034		
25	.503	.006	.509	.012	.514	.017	.520	.022	.526	.028		
26	.502	.005	.507	.010	.511	.014	.517	.018	.522	.023		
27	.502	.004	.506	.008	.509	.011	.513	.014	.517	.018		
28	.501	.003	.504	.005	.506	.008	.509	.010	.513	.013		
29	.501	.002	.503	.003	.504	.005	.505	.006	.508	.008		
30	1.500	3.001	4.501	6.001	7.502	9.002	10.502	12.002	13.503	15.003		
31	.500	.000	.500	5.999	.499	8.999	.499	11.998	.499	14.998		
32	.499	2.999	.498	.997	.497	.996	.495	.994	.494	.993		
33	.499	.998	.497	.995	.494	.993	.491	.990	.490	.988		
34	.498	.997	.495	.993	.492	.990	.488	.986	.485	.983		
35	.498	.996	.494	.991	.489	.987	.484	.982	.480	.978		
36	.497	.995	.492	.989	.486	.984	.481	.978	.476	.972		
37	.497	.994	.491	.987	.484	.981	.477	.974	.471	.967		
38	.496	.993	.489	.985	.481	.978	.474	.970	.467	.962		
39	.496	.992	.488	.983	.479	.975	.470	.966	.462	.957		
40	1.495	2.990	4.486	5.981	7.476	8.971	10.466	11.962	13.457	14.952		
41	.495	.989	.485	.979	.474	.968	.463	.958	.453	.947		
42	.494	.988	.483	.977	.471	.965	.459	.954	.448	.942		
43	.494	.987	.482	.975	.469	.962	.456	.950	.444	.937		
44	.493	.986	.480	.973	.466	.959	.452	.946	.439	.932		
45	.493	.985	.479	.970	.464	.956	.449	.942	.434	.926		
46	.492	.984	.477	.968	.461	.953	.445	.938	.430	.921		
47	.492	.983	.476	.966	.459	.950	.442	.934	.425	.916		
48	.491	.982	.474	.964	.456	.947	.438	.930	.421	.911		
49	.491	.981	.472	.962	.453	.944	.435	.926	.416	.906		
50	1.490	2.980	4.470	5.960	7.450	8.941	10.431	11.921	13.411	14.901		
51	.490	.979	.469	.958	.448	.938	.428	.917	.407	.896		
52	.489	.978	.467	.956	.445	.935	.424	.913	.402	.891		
53	.489	.977	.466	.954	.443	.932	.421	.909	.398	.886		
54	.488	.976	.464	.952	.440	.929	.417	.905	.393	.881		
55	.488	.975	.463	.950	.438	.926	.414	.901	.389	.876		
56	.487	.974	.461	.948	.435	.923	.410	.897	.384	.871		
57	.487	.973	.460	.946	.433	.920	.407	.893	.380	.866		
58	.486	.972	.458	.944	.430	.917	.403	.889	.375	.861		
59	.486	.971	.457	.942	.428	.914	.400	.885	.371	.856		
60	1.485	2.970	4.455	5.940	7.425	8.911	10.396	11.881	13.366	14.851		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.304
2	4.607
3	6.911
4	9.214
5	11.518
6	13.822
7	16.125
8	18.429
9	20.732
10	23.036

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
25 00	2.208	4.416	6.624	8.832	11.040	13.249	15.457	17.665	19.873	22.081	1	0.000
01	.208	.416	.623	.831	.039	.247	.455	.662	.870	.078	2	.001
02	.208	.415	.623	.830	.038	.245	.453	.660	.868	.075	3	.001
03	.207	.414	.622	.829	.036	.243	.450	.658	.865	.072	4	.002
04	.207	.414	.621	.828	.034	.241	.448	.655	.862	.069	5	.003
05	.207	.413	.620	.826	.033	.240	.446	.653	.859	.066	6	.005
											7	.007
06	.206	.413	.619	.825	.032	.238	.444	.650	.857	.063	8	.009
07	.206	.412	.618	.824	.030	.236	.442	.648	.854	.060	9	.011
08	.206	.411	.617	.823	.028	.234	.440	.646	.851	.057	10	.014
09	.205	.411	.616	.822	.027	.232	.438	.643	.849	.054		
10	2.205	4.410	6.615	8.820	11.025	13.231	15.436	17.641	19.846	22.051		
11	.205	.410	.614	.819	.024	.229	.434	.638	.843	.048		
12	.204	.409	.613	.818	.022	.227	.431	.636	.840	.045		
13	.204	.408	.613	.817	.021	.225	.429	.634	.838	.042		
14	.204	.408	.612	.816	.019	.223	.427	.631	.835	.039		
15	.204	.407	.611	.814	.018	.222	.425	.629	.832	.036		
16	.203	.406	.610	.813	.016	.219	.422	.626	.829	.032		
17	.203	.406	.609	.812	.014	.217	.420	.623	.826	.029		
18	.203	.405	.608	.810	.013	.216	.418	.621	.823	.026		
19	.202	.405	.607	.809	.011	.214	.416	.618	.821	.023		
20	2.202	4.404	6.606	8.808	11.010	13.212	15.414	17.616	19.818	22.020		
21	.202	.403	.605	.807	.008	.210	.412	.614	.815	.017		
22	.201	.403	.604	.806	.007	.208	.410	.611	.813	.014		
23	.201	.402	.603	.804	.005	.207	.408	.609	.810	.011		
24	.201	.402	.602	.803	.004	.205	.406	.606	.807	.008		
25	.200	.401	.601	.802	.002	.203	.403	.604	.804	.005		
26	.200	.400	.601	.801	.001	.201	.401	.602	.802	.002		
27	.200	.400	.600	.800	10.999	.199	.399	.599	.799	21.999		
28	.200	.399	.599	.798	.998	.198	.397	.597	.796	.996		
29	.199	.399	.598	.797	.996	.196	.395	.594	.794	.993		
30	2.199	4.398	6.597	8.796	10.995	13.194	15.393	17.592	19.791	21.990		
31	.199	.397	.596	.795	.993	.192	.391	.590	.788	.987		
32	.198	.397	.595	.794	.992	.190	.389	.587	.786	.984		
33	.198	.396	.594	.792	.990	.189	.387	.585	.783	.981		
34	.198	.396	.593	.791	.989	.187	.385	.582	.780	.978		
35	.197	.395	.592	.790	.987	.185	.382	.580	.777	.975		
36	.197	.394	.592	.789	.986	.183	.380	.578	.775	.972		
37	.197	.394	.591	.788	.984	.181	.378	.575	.772	.969		
38	.197	.393	.590	.786	.983	.180	.376	.573	.769	.966		
39	.196	.393	.589	.785	.981	.178	.374	.570	.767	.968		
40	2.196	4.392	6.588	8.784	10.980	13.176	15.372	17.568	19.764	21.960		
41	.196	.391	.587	.783	.978	.174	.370	.566	.761	.957		
42	.195	.391	.586	.782	.977	.172	.368	.563	.759	.954		
43	.195	.390	.585	.780	.975	.171	.366	.561	.756	.951		
44	.195	.390	.584	.779	.974	.169	.364	.558	.753	.948		
45	.194	.389	.583	.778	.972	.167	.361	.556	.750	.945	Latitude interval.	Meridional distances.
46	.194	.388	.582	.776	.970	.165	.359	.553	.747	.941		
47	.194	.388	.581	.775	.969	.163	.357	.550	.744	.938		
48	.193	.387	.580	.774	.967	.161	.354	.548	.741	.935		
49	.193	.386	.580	.773	.966	.159	.352	.546	.739	.932		
50	2.193	4.386	6.579	8.772	10.964	13.157	15.350	17.543	19.736	21.929		
51	.193	.385	.578	.770	.963	.156	.348	.541	.733	.926	′	*Inches.*
52	.192	.385	.577	.769	.961	.154	.346	.538	.731	.923	1	2.423
53	.192	.384	.576	.768	.960	.152	.344	.536	.728	.920	2	4.846
54	.192	.383	.575	.767	.959	.150	.342	.534	.725	.917	3	7.268
55	.191	.383	.574	.766	.957	.148	.340	.531	.723	.914	4	9.691
											5	12.114
56	.191	.382	.573	.764	.955	.147	.338	.529	.720	.911	6	14.537
57	.191	.382	.572	.763	.954	.145	.336	.526	.717	.908	7	16.960
58	.190	.381	.571	.762	.952	.143	.333	.524	.714	.905	8	19.382
59	.190	.380	.571	.761	.951	.141	.331	.522	.712	.902	9	21.805
60	2.190	4.380	6.570	8.760	10.949	13.139	15.329	17.519	19.709	21.899	10	24.228

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
26 00	2.190	4.380	6.570	8.760	10.949	13.139	15.329	17.519	19.709	21.899	1	0.000
1	.190	.379	.569	.758	.948	.138	.327	.517	.706	.896	2	.001
2	.189	.379	.568	.757	.946	.136	.325	.514	.704	.893	3	.001
3	.189	.378	.567	.756	.944	.133	.322	.511	.700	.889	4	.002
4	.189	.377	.566	.754	.943	.132	.320	.509	.697	.886	5	.003
5	.188	.377	.565	.753	.941	.130	.318	.506	.695	.883	6	.005
											7	.007
6	.188	.376	.564	.752	.940	.128	.316	.504	.692	.880	8	.009
7	.188	.375	.563	.751	.938	.126	.314	.502	.689	.877	9	.011
8	.187	.375	.562	.750	.937	.124	.312	.499	.687	.874	10	.014
9	.187	.374	.561	.748	.935	.123	.310	.497	.684	.871		
10	2.187	4.373	6.560	8.747	10.933	13.120	15.307	17.494	19.680	21.867		
11	.186	.373	.559	.746	.932	.118	.305	.491	.678	.864		
12	.186	.372	.558	.744	.930	.117	.303	.489	.675	.861		
13	.186	.372	.557	.743	.929	.115	.301	.486	.672	.858		
14	.185	.371	.556	.742	.927	.113	.298	.484	.669	.855		
15	.185	.370	.556	.741	.926	.111	.296	.482	.667	.852		
16	.185	.370	.555	.740	.925	.109	.294	.479	.664	.849		
17	.184	.369	.553	.738	.922	.107	.291	.476	.660	.845		
18	.184	.368	.553	.737	.921	.105	.289	.474	.658	.842		
19	.184	.368	.552	.736	.919	.103	.287	.471	.655	.839		
20	2.184	4.367	6.551	8.734	10.918	13.102	15.285	17.469	19.652	21.836		
21	.183	.367	.550	.733	.916	.100	.283	.466	.650	.833		
22	.183	.366	.549	.732	.915	.098	.281	.464	.647	.830		
23	.183	.365	.548	.731	.913	.096	.279	.462	.644	.827		
24	.182	.365	.547	.729	.912	.094	.276	.458	.641	.823		
25	.182	.364	.546	.728	.910	.092	.274	.456	.638	.820		
26	.182	.363	.545	.727	.908	.090	.272	.454	.635	.817		
27	.181	.363	.544	.726	.907	.088	.270	.451	.633	.814		
28	.181	.362	.543	.724	.905	.087	.268	.449	.630	.811		
29	.181	.362	.542	.723	.904	.085	.266	.446	.627	.808		
30	2.180	4.361	6.541	8.722	10.902	13.083	15.263	17.444	19.624	21.805		
31	.180	.360	.540	.720	.900	.081	.261	.441	.621	.801		
32	.180	.360	.539	.719	.899	.079	.259	.438	.618	.798		
33	.179	.359	.538	.718	.897	.077	.256	.436	.615	.795		
34	.179	.358	.538	.717	.896	.075	.254	.434	.613	.792		
35	.179	.358	.537	.716	.894	.073	.252	.431	.610	.789		
36	.179	.357	.536	.714	.893	.072	.250	.429	.607	.786		
37	.178	.357	.535	.713	.891	.070	.248	.426	.605	.783		
38	.178	.356	.534	.712	.889	.067	.245	.423	.601	.779		
39	.178	.355	.533	.710	.888	.066	.243	.420	.598	.776		
40	2.177	4.355	6.532	8.709	10.886	13.064	15.241	17.418	19.596	21.773		
41	.177	.354	.531	.708	.885	.062	.239	.416	.593	.770		
42	.177	.353	.530	.707	.883	.060	.237	.414	.590	.767		
43	.176	.353	.529	.706	.882	.058	.235	.411	.588	.764		
44	.176	.352	.528	.704	.880	.057	.233	.409	.585	.761		
45	.176	.351	.527	.703	.878	.054	.230	.406	.581	.757		
46	.175	.351	.526	.702	.877	.052	.228	.403	.579	.754		
47	.175	.350	.525	.700	.875	.051	.226	.401	.576	.751		
48	.175	.350	.524	.699	.874	.049	.224	.398	.573	.748		
49	.175	.349	.523	.698	.872	.047	.221	.396	.570	.745		
50	2.174	4.348	6.523	8.697	10.871	13.045	15.219	17.394	19.568	21.742		
51	.174	.348	.522	.696	.869	.043	.217	.391	.565	.739		
52	.173	.347	.520	.694	.867	.041	.214	.388	.561	.735		
53	.173	.346	.519	.692	.865	.039	.212	.385	.558	.731		
54	.173	.346	.519	.692	.864	.037	.210	.383	.556	.729		
55	.173	.345	.518	.690	.863	.036	.208	.381	.553	.726		
56	.172	.345	.517	.689	.861	.034	.206	.378	.551	.723		
57	.172	.344	.516	.688	.860	.032	.204	.376	.548	.720		
58	.172	.343	.515	.687	.858	.030	.202	.374	.545	.717		
59	.171	.343	.514	.686	.857	.028	.200	.371	.543	.714		
60	2.171	4.342	6.513	8.684	10.855	13.026	15.197	17.368	19.539	21.710		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.423
2	4.846
3	7.269
4	9.692
5	12.116
6	14.539
7	16.962
8	19.385
9	21.808
10	24.231

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ lon. gitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
27 00	2.171	4.342	6.513	8.684	10.855	13.026	15.197	17.368	19.539	21.710	1	0.000
01	.171	.341	.512	.683	.853	.024	.195	.366	.536	.707	2	.001
02	.170	.341	.511	.682	.852	.022	.193	.363	.534	.704	3	.001
03	.170	.340	.510	.680	.850	.021	.191	.361	.531	.701	4	.002
04	.170	.339	.509	.679	.848	.018	.188	.358	.527	.697	5	.004
05	.169	.339	.508	.678	.847	.016	.186	.355	.525	.694	6	.005
											7	.007
06	.169	.338	.507	.676	.845	.015	.184	.353	.522	.691	8	.009
07	.169	.338	.506	.675	.844	.013	.182	.350	.519	.688	9	.012
08	.168	.337	.505	.674	.842	.010	.179	.347	.516	.684	10	.014
09	.168	.336	.504	.672	.840	.009	.177	.345	.513	.681		
10	2.168	4.336	6.503	8.671	10.839	13.007	15.175	17.342	19.510	21.678		
11	.167	.335	.502	.670	.837	.005	.172	.340	.507	.675		
12	.167	.334	.501	.668	.835	.003	.170	.337	.504	.671		
13	.167	.334	.500	.667	.834	.001	.168	.334	.501	.668		
14	.166	.333	.499	.666	.832	12.999	.165	.332	.498	.665		
15	.166	.332	.499	.665	.831	.997	.163	.330	.496	.662		
16	.166	.332	.497	.663	.829	.995	.161	.326	.492	.658		
17	.165	.331	.496	.662	.827	.993	.158	.324	.489	.655		
18	.165	.330	.496	.661	.826	.991	.156	.322	.487	.652		
19	.165	.330	.495	.660	.824	.989	.154	.319	.484	.649		
20	2.164	4.329	6.493	8.658	10.822	12.987	15.151	17.316	19.480	21.645		
21	.164	.328	.492	.656	.820	.985	.149	.313	.477	.641		
22	.164	.328	.491	.655	.819	.983	.147	.310	.474	.638		
23	.163	.327	.490	.654	.817	.981	.144	.308	.471	.635		
24	.163	.326	.489	.652	.815	.979	.142	.305	.468	.631		
25	.163	.326	.488	.651	.814	.977	.140	.302	.465	.628		
26	.162	.325	.487	.650	.812	.975	.137	.300	.462	.625		
27	.162	.324	.487	.649	.811	.973	.135	.298	.460	.622		
28	.162	.324	.485	.647	.809	.971	.133	.294	.456	.618		
29	.161	.323	.484	.646	.807	.969	.130	.292	.453	.615		
30	2.161	4.322	6.484	8.645	10.806	12.967	15.128	17.290	19.451	21.612		
31	.161	.322	.483	.644	.804	.965	.126	.287	.448	.609		
32	.160	.321	.481	.642	.802	.963	.123	.284	.444	.605		
33	.160	.320	.481	.641	.801	.961	.121	.282	.442	.602		
34	.160	.320	.480	.640	.799	.959	.119	.279	.439	.599		
35	.160	.319	.479	.638	.798	.958	.117	.277	.436	.596		
36	.159	.318	.478	.637	.796	.955	.114	.274	.433	.592		
37	.159	.318	.477	.636	.794	.953	.112	.271	.430	.589		
38	.159	.317	.476	.634	.793	.952	.110	.269	.427	.586		
39	.158	.317	.475	.633	.791	.950	.108	.266	.425	.583		
40	2.158	4.316	6.474	8.632	10.789	12.947	15.105	17.263	19.421	21.579		
41	.158	.315	.473	.630	.788	.946	.103	.261	.418	.576		
42	.157	.315	.472	.629	.786	.944	.101	.258	.416	.573		
43	.157	.314	.471	.628	.785	.942	.099	.256	.413	.570		
44	.157	.313	.470	.626	.783	.940	.096	.253	.409	.566		
45	.156	.313	.469	.625	.781	.938	.094	.250	.407	.563		
46	.156	.312	.468	.624	.780	.936	.092	.248	.404	.560		
47	.156	.311	.467	.623	.778	.934	.090	.246	.401	.557		
48	.155	.311	.466	.621	.776	.932	.087	.242	.398	.553		
49	.155	.310	.465	.620	.775	.930	.085	.240	.395	.550		
50	2.155	4.309	6.464	8.619	10.774	12.928	15.083	17.238	19.392	21.547		
51	.154	.309	.463	.618	.772	.926	.081	.235	.390	.544		
52	.154	.308	.462	.616	.770	.924	.078	.232	.386	.540		
53	.154	.307	.461	.615	.768	.922	.076	.230	.383	.537		
54	.153	.307	.460	.614	.767	.920	.074	.227	.381	.534		
55	.153	.306	.459	.612	.765	.919	.072	.225	.378	.531		
56	.153	.305	.458	.611	.763	.916	.069	.222	.374	.527		
57	.152	.305	.457	.610	.762	.914	.067	.219	.372	.524		
58	.152	.304	.456	.608	.760	.913	.065	.217	.369	.521		
59	.152	.304	.455	.607	.759	.911	.063	.214	.366	.518		
60	2.151	4.303	6.454	8.606	10.757	12.908	15.060	17.211	19.363	21.514		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.423
2	4.847
3	7.270
4	9.694
5	12.117
6	14.541
7	16.964
8	19.388
9	21.811
10	24.235

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
28 00	2.151	4.303	6.454	8.606	10.757	12.908	15.060	17.211	19.363	21.514	1	0.000
1	.151	.302	.453	.604	.755	.907	.058	.209	.360	.511	2	.001
2	.151	.302	.452	.603	.754	.905	.056	.206	.357	.508	3	.001
3	.150	.301	.451	.602	.752	.902	.053	.203	.354	.504	4	.002
4	.150	.300	.450	.600	.750	.901	.051	.201	.351	.501	5	.004
5	.150	.300	.449	.599	.749	.899	.049	.198	.348	.498	6	.005
											7	.007
6	.149	.299	.448	.598	.747	.896	.046	.195	.345	.494	8	.009
7	.149	.298	.447	.596	.745	.895	.044	.193	.342	.491	9	.012
8	.149	.298	.446	.595	.744	.893	.042	.190	.339	.488	10	.015
9	.148	.297	.445	.594	.742	.890	.039	.187	.336	.484		
10	2.148	4.296	6.444	8.592	10.740	12.889	15.037	17.185	19.333	21.481		
11	.148	.296	.443	.591	.739	.887	.035	.182	.330	.478		
12	.147	.295	.442	.590	.737	.884	.032	.179	.327	.474		
13	.147	.294	.441	.588	.735	.883	.030	.177	.324	.471		
14	.147	.294	.440	.587	.734	.881	.028	.174	.321	.468		
15	.146	.293	.439	.586	.732	.878	.025	.171	.318	.464		
16	.146	.292	.438	.584	.730	.877	.023	.169	.315	.461		
17	.146	.292	.437	.583	.729	.875	.021	.166	.312	.458		
18	.145	.291	.436	.582	.727	.872	.018	.163	.309	.454		
19	.145	.290	.435	.580	.725	.871	.016	.161	.306	.451		
20	2.145	4.290	6.434	8.579	10.724	12.869	15.014	17.158	19.303	21.448		
21	.144	.289	.433	.578	.722	.866	.011	.155	.300	.444		
22	.144	.288	.432	.576	.720	.865	.009	.153	.297	.441		
23	.144	.288	.431	.575	.719	.863	.007	.150	.294	.438		
24	.143	.287	.430	.574	.717	.860	.004	.147	.291	.434		
25	.143	.286	.429	.572	.715	.859	.002	.145	.288	.431		
26	.143	.286	.428	.571	.714	.857	.000	.142	.285	.428		
27	.142	.285	.427	.570	.712	.854	14.997	.139	.282	.424		
28	.142	.284	.426	.568	.710	.853	.995	.137	.279	.421		
29	.142	.284	.425	.567	.709	.851	.993	.134	.276	.418		
30	2.141	4.283	6.424	8.566	10.707	12.848	14.990	17.131	19.273	21.414		
31	.141	.282	.423	.564	.705	.846	.987	.128	.269	.410		
32	.141	.281	.422	.563	.703	.844	.985	.126	.266	.407		
33	.140	.281	.421	.561	.701	.842	.982	.122	.263	.403		
34	.140	.280	.420	.560	.700	.840	.980	.120	.260	.400		
35	.140	.279	.419	.559	.698	.838	.978	.118	.257	.397		
36	.139	.279	.418	.557	.696	.836	.975	.114	.254	.393		
37	.139	.278	.417	.556	.695	.834	.973	.112	.251	.390		
38	.139	.277	.416	.555	.693	.832	.971	.110	.248	.387		
39	.138	.277	.415	.553	.691	.830	.968	.106	.245	.383		
40	2.138	4.276	6.414	8.552	10.690	12.828	14.966	17.104	19.242	21.380		
41	.138	.275	.413	.551	.688	.826	.964	.102	.239	.377		
42	.137	.275	.412	.549	.686	.824	.961	.098	.236	.373		
43	.137	.274	.411	.548	.685	.822	.959	.096	.233	.370		
44	.137	.273	.410	.547	.683	.820	.957	.094	.230	.367		
45	.136	.273	.409	.545	.681	.818	.954	.090	.227	.363		
46	.136	.272	.408	.544	.680	.816	.952	.088	.224	.360		
47	.136	.271	.407	.543	.678	.814	.950	.086	.221	.357		
48	.135	.271	.406	.541	.676	.812	.947	.082	.218	.353		
49	.135	.270	.405	.540	.675	.810	.945	.080	.215	.350		
50	2.135	4.269	6.404	8.539	10.673	12.808	14.943	17.078	19.212	21.347		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.424
2	4.848
3	7.271
4	9.695
5	12.119
6	14.543
7	16.967
8	19.390
9	21.814
10	24.238

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
50	2.135	4.269	6.404	8.539	10.673	12.808	14.943	17.078	19.212	21.347		
51	.134	.269	.403	.537	.671	.806	.940	.074	.209	.343	1	2.424
52	.134	.268	.402	.536	.670	.804	.938	.072	.206	.340	2	4.848
53	.134	.267	.401	.535	.668	.802	.936	.070	.203	.337	3	7.271
54	.133	.267	.400	.533	.666	.800	.933	.066	.200	.333	4	9.695
55	.133	.266	.399	.532	.665	.798	.931	.064	.197	.330	5	12.119
56	.133	.265	.398	.531	.663	.796	.929	.062	.194	.327	6	14.543
57	.132	.265	.397	.529	.661	.794	.926	.058	.191	.323	7	16.967
58	.132	.264	.396	.528	.660	.792	.924	.056	.188	.320	8	19.390
59	.132	.263	.395	.527	.658	.790	.922	.054	.185	.317	9	21.814
60	2.131	4.263	6.394	8.525	10.656	12.788	14.919	17.050	19.182	21.313	10	24.238

TABLE XI.—*Co-ordinates for projections of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*		*Inches.*
29 00	2.131	4.263	6.394	8.525	10.656	12.788	14.919	17.050	19.182	21.313	1	0.000
01	.131	.262	.393	.524	.655	.786	.917	.048	.179	.310	2	.001
02	.131	.261	.392	.522	.653	.784	.914	.045	.175	.306	3	.001
03	.130	.261	.391	.521	.651	.782	.912	.042	.173	.303	4	.002
04	.130	.260	.390	.520	.649	.779	.909	.039	.169	.299	5	.004
05	.130	.259	.389	.518	.648	.778	.907	.037	.166	.296	6	.005
											7	.007
06	.129	.258	.388	.517	.646	.775	.904	.034	.163	.292	8	.010
07	.129	.258	.387	.516	.644	.773	.902	.031	.160	.289	9	.012
08	.128	.257	.385	.514	.642	.771	.899	.028	.156	.285	10	.015
09	.128	.256	.385	.513	.641	.769	.897	.026	.154	.282		
10	2.128	4.256	6.383	8.511	10.639	12.767	14.895	17.022	19.150	21.278		
11	.127	.255	.382	.510	.637	.765	.892	.020	.147	.275		
12	.127	.254	.381	.508	.635	.763	.890	.017	.144	.271		
13	.127	.254	.380	.507	.634	.761	.888	.014	.141	.268		
14	.126	.253	.379	.506	.632	.758	.885	.011	.138	.264		
15	.126	.252	.378	.504	.630	.757	.883	.009	.135	.261		
16	.126	.251	.377	.503	.628	.754	.880	.006	.131	.257		
17	.125	.251	.376	.502	.627	.752	.878	.003	.129	.254		
18	.125	.250	.375	.500	.625	.750	.875	.000	.125	.250		
19	.125	.249	.374	.499	.623	.748	.873	16.998	.122	.247		
20	2.124	4.249	6.373	8.497	10.621	12.746	14.870	16.994	19.119	21.243		
21	.124	.248	.372	.496	.620	.744	.868	.992	.116	.240		
22	.124	.247	.371	.494	.618	.742	.865	.989	.112	.236		
23	.123	.247	.370	.493	.616	.740	.863	.986	.110	.233		
24	.123	.246	.369	.492	.614	.737	.860	.983	.106	.229		
25	.123	.245	.368	.490	.613	.736	.858	.981	.103	.226		
26	.122	.244	.367	.489	.611	.733	.855	.978	.100	.222		
27	.122	.244	.366	.488	.609	.731	.853	.975	.097	.219		
28	.121	.243	.364	.486	.607	.729	.850	.972	.093	.215		
29	.121	.242	.364	.485	.606	.727	.848	.970	.091	.212		
30	2.121	4.242	6.363	8.484	10.604	12.725	14.846	16.967	19.088	21.209		
31	.121	.241	.362	.482	.603	.724	.844	.965	.085	.206		
32	.120	.240	.361	.481	.601	.721	.841	.962	.082	.202		
33	.120	.240	.360	.480	.599	.719	.839	.959	.079	.199		
34	.119	.239	.358	.478	.597	.717	.836	.956	.075	.195		
35	.119	.238	.358	.477	.596	.715	.834	.954	.073	.192		
36	.119	.238	.356	.475	.594	.713	.832	.950	.069	.188		
37	.118	.237	.355	.474	.592	.711	.829	.948	.066	.185		
38	.118	.236	.354	.472	.590	.709	.827	.945	.063	.181		
39	.118	.236	.353	.471	.589	.707	.825	.942	.060	.178		
40	2.117	4.235	6.352	8.470	10.587	12.704	14.822	16.939	19.057	21.174		
41	.117	.234	.351	.468	.585	.703	.820	.937	.054	.171		
42	.117	.233	.350	.467	.583	.700	.817	.934	.050	.167		
43	.116	.233	.349	.466	.582	.698	.815	.931	.048	.164		
44	.116	.232	.348	.464	.580	.696	.812	.928	.044	.160	Latitude interval.	Meridional distances.
45	.116	.231	.347	.463	.578	.694	.810	.926	.041	.157		
46	.115	.231	.346	.461	.576	.692	.807	.922	.038	.153		
47	.115	.230	.345	.460	.575	.690	.805	.920	.035	.150		
48	.115	.229	.344	.458	.573	.688	.802	.917	.031	.146		
49	.114	.229	.343	.457	.571	.686	.800	.914	.029	.143		
50	2.114	4.228	6.342	8.456	10.569	12.683	14.797	16.911	19.025	21.139		
51	.114	.227	.341	.454	.568	.682	.795	.909	.022	.136	′	*Inches.*
52	.113	.226	.340	.453	.566	.679	.792	.906	.019	.132	1	2.424
53	.113	.226	.339	.452	.564	.677	.790	.903	.016	.129	2	4.848
54	.112	.225	.337	.450	.562	.675	.787	.900	.012	.125	3	7.273
55	.112	.224	.337	.449	.561	.673	.785	.898	.010	.122	4	9.697
											5	12.121
56	.112	.224	.335	.447	.559	.671	.783	.894	.006	.118	6	14.545
57	.111	.223	.334	.446	.557	.669	.780	.892	.003	.115	7	16.969
58	.111	.222	.333	.444	.555	.667	.778	.889	.000	.111	8	19.394
59	.111	.222	.332	.443	.554	.665	.776	.886	18.997	.108	9	21.818
60	2.110	4.221	6.331	8.442	10.552	12.662	14.773	16.883	18.994	21.104	10	24.242

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
30 00	2.110	4.221	6.331	8.442	10.552	12.662	14.773	16.883	18.994	21.104	1	0.000
01	.110	.220	.330	.440	.550	.660	.770	.880	.990	.100	2	.001
02	.110	.219	.329	.439	.548	.658	.768	.878	.987	.097	3	.001
03	.109	.219	.328	.437	.546	.656	.765	.874	.984	.093	4	.002
04	.109	.218	.327	.436	.545	.654	.763	.872	.981	.090	5	.004
05	.109	.217	.326	.434	.543	.652	.760	.869	.977	.086	6	.006
											7	.007
06	.108	.217	.325	.433	.541	.650	.758	.866	.975	.083	8	.010
07	.108	.216	.324	.432	.539	.647	.755	.863	.971	.079	9	.012
08	.107	.215	.322	.430	.537	.645	.752	.860	.967	.075	10	.015
09	.107	.214	.322	.429	.536	.643	.750	.858	.965	.072		
10	2.107	4.214	6.320	8.427	10.534	12.641	14.748	16.854	18.961	21.068		
11	.106	.213	.319	.426	.532	.639	.745	.852	.958	.065		
12	.106	.212	.318	.424	.530	.637	.743	.849	.955	.061		
13	.106	.212	.317	.423	.529	.635	.741	.846	.952	.058		
14	.105	.211	.316	.422	.527	.632	.738	.843	.949	.054		
15	.105	.210	.315	.420	.525	.631	.736	.841	.946	.051		
16	.105	.209	.314	.419	.523	.628	.733	.838	.942	.047		
17	.104	.209	.313	.418	.522	.626	.731	.835	.940	.044		
18	.104	.208	.312	.416	.520	.624	.728	.832	.936	.040		
19	.104	.207	.311	.415	.518	.622	.726	.830	.933	.037		
20	2.103	4.207	6.310	8.413	10.516	12.620	14.723	16.826	18.930	21.033		
21	.103	.206	.309	.412	.515	.618	.721	.824	.927	.030		
22	.103	.205	.308	.410	.513	.616	.718	.821	.923	.026		
23	.102	.204	.307	.409	.511	.613	.715	.818	.920	.022		
24	.102	.204	.306	.408	.509	.611	.713	.815	.917	.019		
25	.101	.203	.304	.406	.507	.609	.710	.812	.913	.015		
26	.101	.202	.304	.405	.506	.607	.708	.810	.911	.012		
27	.101	.202	.302	.403	.504	.605	.706	.806	.907	.008		
28	.100	.201	.301	.402	.502	.603	.703	.804	.904	.005		
29	.100	.200	.300	.400	.500	.601	.701	.801	.901	.001		
30	2.100	4.200	6.299	8.399	10.499	12.599	14.699	16.798	18.898	20.998		
31	.099	.199	.298	.398	.497	.596	.696	.795	.895	.994		
32	.099	.198	.297	.396	.495	.595	.694	.793	.892	.991		
33	.099	.197	.296	.395	.493	.592	.691	.790	.888	.987		
34	.098	.197	.295	.394	.492	.590	.689	.787	.886	.984		
35	.098	.196	.294	.392	.490	.588	.686	.784	.882	.980		
36	.098	.195	.293	.391	.488	.586	.684	.782	.879	.977		
37	.097	.195	.292	.389	.486	.584	.681	.778	.876	.973		
38	.097	.194	.291	.388	.484	.581	.678	.775	.872	.969		
39	.097	.193	.290	.386	.483	.580	.676	.773	.869	.966		
40	2.096	4.192	6.289	8.385	10.481	12.577	14.673	16.770	18.866	20.962		
41	.096	.192	.288	.384	.479	.575	.671	.767	.863	.959		
42	.095	.191	.286	.382	.477	.573	.668	.764	.859	.955		
43	.095	.190	.286	.381	.476	.571	.666	.762	.857	.952		
44	.095	.190	.284	.379	.474	.569	.664	.758	.853	.948		
45	.094	.189	.283	.378	.472	.567	.661	.756	.850	.945		
46	.094	.188	.282	.376	.470	.565	.659	.753	.847	.941		
47	.094	.188	.281	.375	.469	.563	.657	.750	.844	.938		
48	.093	.187	.280	.374	.467	.560	.654	.747	.841	.934		
49	.093	.186	.279	.372	.465	.559	.652	.745	.838	.931		
50	2.093	4.185	6.278	8.371	10.463	12.556	14.649	16.742	18.834	20.927		
51	.092	.185	.277	.370	.462	.554	.647	.739	.832	.924		
52	.092	.184	.276	.368	.460	.552	.644	.736	.828	.920		
53	.092	.183	.275	.366	.458	.550	.641	.733	.824	.916		
54	.091	.183	.274	.365	.456	.548	.639	.730	.822	.913		
55	.091	.182	.273	.364	.454	.545	.636	.727	.818	.909		
56	.091	.181	.272	.362	.453	.544	.634	.725	.815	.906		
57	.090	.180	.271	.361	.451	.541	.631	.722	.812	.902		
58	.090	.180	.269	.359	.449	.539	.629	.718	.808	.898		
59	.089	.179	.268	.358	.447	.536	.626	.715	.805	.894		
60	2.089	4.178	6.267	8.356	10.445	12.534	14.623	16.712	18.801	20.890		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.424
2	4.849
3	7.273
4	9.698
5	12.122
6	14.547
7	16.971
8	19.396
9	21.820
10	24.245

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
31 00	2.089	4.178	6.267	8.356	10.445	12.534	14.623	16.712	18.801	20.890	1	0.000
01	.089	.177	.266	.354	.443	.532	.620	.709	.797	.886	2	.001
02	.088	.177	.265	.353	.441	.530	.618	.706	.795	.883	3	.001
03	.088	.176	.264	.352	.439	.527	.615	.703	.791	.879	4	.002
04	.087	.175	.262	.350	.437	.525	.612	.700	.787	.875	5	.004
05	.087	.174	.262	.349	.436	.523	.610	.698	.785	.872	6	.006
											7	.008
06	.087	.174	.260	.347	.434	.521	.608	.694	.781	.868	8	.010
07	.086	.173	.259	.346	.432	.518	.605	.691	.778	.864	9	.013
08	.086	.172	.258	.344	.430	.517	.603	.689	.775	.861	10	.016
09	.086	.171	.257	.343	.428	.514	.600	.686	.771	.857		
10	2.085	4.171	6.256	8.341	10.426	12.512	14.597	16.682	18.768	20.853		
11	.085	.170	.255	.340	.425	.510	.595	.680	.765	.850		
12	.085	.169	.254	.338	.423	.508	.592	.677	.761	.846		
13	.084	.168	.253	.337	.421	.505	.589	.674	.758	.842		
14	.084	.168	.252	.336	.419	.503	.587	.671	.755	.839		
15	.083	.167	.250	.334	.417	.501	.584	.668	.751	.835		
16	.083	.166	.249	.332	.415	.499	.582	.665	.748	.831		
17	.083	.166	.248	.331	.414	.497	.580	.662	.745	.828		
18	.082	.165	.247	.330	.412	.494	.577	.659	.742	.824		
19	.082	.164	.246	.328	.410	.492	.574	.656	.738	.820		
20	2.082	4.163	6.245	8.327	10.408	12.490	14.572	16.654	18.735	20.817		
21	.081	.163	.244	.325	.406	.488	.569	.650	.732	.813		
22	.081	.162	.243	.324	.404	.485	.566	.647	.728	.809		
23	.081	.161	.242	.322	.403	.484	.564	.645	.725	.806		
24	.080	.160	.241	.321	.401	.481	.561	.642	.722	.802		
25	.080	.160	.239	.319	.399	.479	.559	.638	.718	.798		
26	.079	.159	.238	.318	.397	.477	.556	.636	.715	.795		
27	.079	.158	.237	.316	.395	.475	.554	.633	.712	.791		
28	.079	.157	.236	.315	.393	.472	.551	.630	.708	.787		
29	.078	.157	.235	.314	.392	.470	.549	.627	.706	.784		
30	2.078	4.156	6.234	8.312	10.390	12.468	14.546	16.624	18.702	20.780		
31	.078	.155	.233	.310	.388	.466	.543	.621	.698	.776		
32	.077	.154	.232	.309	.386	.463	.540	.618	.695	.772		
33	.077	.154	.231	.308	.384	.461	.538	.615	.692	.769		
34	.076	.153	.229	.306	.382	.459	.535	.612	.688	.765		
35	.076	.152	.228	.304	.380	.457	.533	.609	.685	.761		
36	.076	.152	.227	.303	.379	.455	.530	.606	.682	.758		
37	.075	.151	.226	.302	.377	.452	.528	.603	.679	.754		
38	.075	.150	.225	.300	.375	.450	.525	.600	.675	.750		
39	.075	.149	.224	.299	.373	.448	.523	.598	.672	.747		
40	2.074	4.149	6.223	8.298	10.372	12.446	14.521	16.595	18.670	20.744		
41	.074	.148	.222	.296	.369	.443	.517	.591	.665	.739		
42	.074	.147	.221	.294	.368	.442	.515	.589	.662	.736		
43	.073	.146	.220	.293	.366	.439	.512	.586	.659	.732		
44	.073	.146	.218	.291	.364	.437	.510	.582	.655	.728		
45	.072	.145	.217	.290	.362	.435	.507	.580	.652	.725		
46	.072	.144	.216	.288	.360	.433	.505	.577	.649	.721		
47	.072	.143	.215	.287	.358	.430	.502	.574	.645	.717		
48	.071	.143	.214	.286	.357	.428	.500	.571	.643	.714		
49	.071	.142	.213	.284	.355	.426	.497	.568	.639	.710		
50	2.071	4.141	6.212	8.282	10.353	12.424	14.494	16.565	18.635	20.706		
51	.070	.141	.211	.281	.351	.422	.492	.562	.633	.703		
52	.070	.140	.210	.280	.349	.419	.489	.559	.629	.699		
53	.069	.139	.208	.278	.347	.417	.486	.556	.625	.695		
54	.069	.138	.208	.277	.346	.415	.484	.554	.623	.692		
55	.069	.138	.206	.275	.344	.413	.482	.550	.619	.688		
56	.068	.137	.205	.274	.342	.410	.479	.547	.616	.684		
57	.068	.136	.204	.272	.340	.409	.477	.545	.613	.681		
58	.068	.135	.203	.271	.338	.406	.474	.542	.609	.677		
59	.067	.135	.202	.269	.336	.404	.471	.538	.606	.673		
60	2.067	4.134	6.201	8.268	10.334	12.401	14.468	16.535	18.602	20.669		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.425
2	4.850
3	7.275
4	9.700
5	12.124
6	14.549
7	16.974
8	19.399
9	21.824
10	24.249

TABLE XI.—*Co-ordinates for projection of maps.—Scale* $\frac{1}{3000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
32 00	2.067	4.134	6.201	8.268	10.334	12.401	14.468	16.535	18.602	20.669	1	0.000
01	.066	.133	.199	.266	.332	.399	.465	.532	.598	.665	2	.001
02	.066	.132	.198	.264	.330	.397	.463	.529	.595	.661	3	.001
03	.066	.131	.197	.263	.328	.394	.460	.526	.591	.657	4	.003
04	.065	.131	.196	.261	.326	.392	.457	.522	.588	.653	5	.004
05	.065	.130	.195	.260	.325	.390	.455	.520	.585	.650	6	.006
											7	.008
06	.065	.129	.194	.258	.323	.388	.452	.517	.581	.646	8	.010
07	.064	.128	.193	.257	.321	.385	.449	.514	.578	.642	9	.013
08	.064	.128	.191	.255	.319	.383	.447	.510	.574	.638	10	.016
09	.063	.127	.190	.254	.317	.380	.444	.507	.571	.634		
10	2.063	4.126	6.189	8.252	10.315	12.379	14.442	16.505	18.568	20.631		
11	.063	.125	.188	.251	.313	.376	.439	.502	.564	.627		
12	.062	.125	.187	.249	.311	.374	.436	.498	.561	.623		
13	.062	.124	.186	.248	.309	.371	.433	.495	.557	.619		
14	.061	.123	.184	.246	.307	.369	.430	.492	.553	.615		
15	.061	.122	.184	.245	.306	.367	.428	.490	.551	.612		
16	.061	.122	.182	.243	.304	.365	.426	.486	.547	.608		
17	.060	.121	.181	.242	.302	.362	.423	.483	.544	.604		
18	.060	.120	.180	.240	.300	.360	.420	.480	.540	.600		
19	.060	.119	.179	.238	.298	.358	.417	.477	.536	.596		
20	2.059	4.119	6.178	8.237	10.296	12.356	14.415	16.474	18.534	20.593		
21	.059	.118	.177	.236	.294	.353	.412	.471	.530	.589		
22	.058	.117	.175	.234	.292	.351	.409	.468	.526	.585		
23	.058	.116	.174	.232	.290	.349	.407	.465	.523	.581		
24	.058	.115	.173	.231	.288	.346	.404	.462	.519	.577		
25	.057	.115	.172	.230	.287	.344	.402	.459	.517	.574		
26	.057	.114	.171	.228	.285	.342	.399	.456	.513	.570		
27	.057	.113	.170	.226	.283	.340	.396	.453	.509	.566		
28	.056	.112	.169	.225	.281	.337	.393	.450	.506	.562		
29	.056	.112	.167	.223	.279	.335	.391	.446	.502	.558		
30	2.055	4.111	6.166	8.222	10.277	12.333	14.388	16.444	18.499	20.555		
31	.055	.110	.165	.220	.275	.331	.386	.441	.496	.551		
32	.055	.109	.164	.219	.273	.328	.383	.438	.492	.547		
33	.054	.109	.163	.217	.271	.326	.380	.434	.489	.543		
34	.054	.108	.162	.216	.269	.323	.377	.431	.485	.539		
35	.054	.107	.161	.214	.268	.322	.375	.429	.482	.536		
36	.053	.106	.160	.213	.266	.319	.372	.426	.479	.532		
37	.053	.106	.158	.211	.264	.317	.370	.422	.475	.528		
38	.052	.105	.157	.210	.262	.314	.367	.419	.472	.524		
39	.052	.104	.156	.208	.260	.312	.364	.416	.468	.520		
40	2.052	4.103	6.155	8.207	10.258	12.310	14.362	16.414	18.465	20.517		
41	.051	.103	.154	.205	.256	.308	.359	.410	.462	.513		
42	.051	.102	.153	.204	.254	.305	.356	.407	.458	.509		
43	.050	.101	.151	.202	.252	.303	.353	.404	.454	.505		
44	.050	.100	.150	.200	.250	.300	.351	.401	.451	.501		
45	.050	.100	.149	.199	.249	.299	.349	.398	.448	.498		
46	.049	.099	.148	.198	.247	.296	.346	.395	.445	.494		
47	.049	.098	.147	.196	.245	.294	.343	.392	.441	.490		
48	.049	.097	.146	.194	.243	.292	.340	.389	.437	.486		
49	.048	.096	.145	.193	.241	.289	.337	.386	.434	.482		
50	2.048	4.096	6.144	8.192	10.239	12.287	14.335	16.383	18.431	20.479		
51	.047	.095	.142	.190	.237	.285	.332	.380	.427	.475	′	*Inches.*
52	.047	.094	.141	.188	.235	.283	.330	.377	.424	.471	1	2.425
53	.047	.093	.140	.187	.233	.280	.327	.374	.420	.467	2	4.851
54	.046	.093	.139	.185	.231	.278	.324	.370	.417	.463	3	7.276
55	.046	.092	.138	.184	.230	.276	.322	.368	.414	.460	4	9.702
											5	12.127
56	.046	.091	.137	.182	.228	.274	.319	.365	.410	.456	6	14.552
57	.045	.090	.136	.181	.226	.271	.316	.362	.407	.452	7	16.978
58	.045	.090	.134	.179	.224	.269	.314	.358	.403	.448	8	19.403
59	.044	.089	.133	.178	.222	.266	.311	.355	.400	.444	9	21.829
60	2.044	4.088	6.132	8.176	10.220	12.265	14.309	16.353	18.397	20.441	10	24.254

Latitude interval. | Meridional distances.

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
33 00	2.044	4.088	6.132	8.176	10.220	12.265	14.309	16.353	18.397	20.441	1	0.000
1	.044	.087	.131	.175	.218	.262	.306	.350	.393	.437	2	.001
2	.043	.087	.130	.173	.216	.260	.303	.346	.390	.433	3	.001
3	.043	.086	.129	.172	.214	.257	.300	.343	.386	.429	4	.003
4	.042	.085	.127	.170	.212	.255	.297	.340	.382	.425	5	.004
5	.042	.084	.126	.168	.210	.253	.295	.337	.379	.421	6	.006
											7	.008
6	.042	.083	.125	.167	.208	.250	.292	.334	.375	.417	8	.010
7	.041	.083	.124	.165	.206	.248	.289	.330	.372	.413	9	.013
8	.041	.082	.123	.164	.204	.245	.286	.327	.368	.409	10	.016
9	.040	.081	.121	.162	.202	.243	.283	.324	.364	.405		
10	2.040	4.080	6.121	8.161	10.201	12.241	14.281	16.322	18.362	20.402		
11	.040	.080	.119	.159	.199	.239	.279	.318	.358	.398		
12	.039	.079	.118	.158	.197	.236	.276	.315	.355	.394		
13	.039	.078	.117	.156	.195	.234	.273	.312	.351	.390		
14	.039	.077	.116	.154	.193	.232	.270	.309	.347	.386		
15	.038	.076	.115	.153	.191	.229	.267	.306	.344	.382		
16	.038	.076	.113	.151	.189	.227	.265	.302	.340	.378		
17	.037	.075	.112	.150	.187	.224	.262	.299	.337	.374		
18	.037	.074	.111	.148	.185	.222	.259	.296	.333	.370		
19	.037	.073	.110	.146	.183	.220	.256	.293	.329	.366		
20	2.036	4.073	6.109	8.145	10.181	12.218	14.254	16.290	18.327	20.363		
21	.036	.072	.108	.144	.179	.215	.251	.287	.323	.359		
22	.035	.071	.106	.142	.177	.213	.248	.284	.319	.355		
23	.035	.070	.105	.140	.175	.211	.246	.281	.316	.351		
24	.035	.069	.104	.139	.173	.208	.243	.278	.312	.347		
25	.034	.069	.103	.137	.171	.206	.240	.274	.309	.343		
26	.034	.068	.102	.136	.169	.203	.237	.271	.305	.339		
27	.033	.067	.100	.134	.167	.201	.234	.268	.301	.335		
28	.033	.066	.099	.132	.165	.199	.232	.265	.298	.331		
29	.033	.065	.098	.131	.163	.196	.229	.262	.294	.327		
30	2.032	4.065	6.097	8.130	10.162	12.194	14.227	16.259	18.292	20.324		
31	.032	.064	.096	.128	.160	.192	.224	.256	.288	.320		
32	.032	.063	.095	.126	.158	.190	.221	.253	.284	.316		
33	.031	.062	.094	.125	.156	.187	.218	.250	.281	.312		
34	.031	.062	.092	.123	.154	.185	.216	.246	.277	.308		
35	.030	.061	.091	.122	.152	.182	.213	.243	.274	.304		
36	.030	.060	.090	.120	.150	.180	.210	.240	.270	.300		
37	.030	.059	.089	.118	.148	.178	.207	.237	.266	.296		
38	.029	.058	.088	.117	.146	.175	.204	.234	.263	.292		
39	.029	.058	.086	.115	.144	.173	.202	.230	.259	.288		
40	2.028	4.057	6.085	8.114	10.142	12.171	14.199	16.228	18.256	20.285		
41	.028	.056	.084	.112	.140	.169	.197	.225	.253	.281		
42	.028	.055	.083	.111	.139	.166	.194	.222	.249	.277		
43	.027	.055	.082	.109	.136	.164	.191	.218	.246	.273		
44	.027	.054	.081	.108	.134	.161	.188	.215	.242	.269		
45	.026	.053	.079	.106	.132	.159	.185	.212	.238	.265		
46	.026	.052	.078	.104	.130	.157	.183	.209	.235	.261		
47	.026	.051	.077	.103	.128	.154	.180	.206	.231	.257		
48	.025	.051	.076	.101	.126	.152	.177	.202	.228	.253		
49	.025	.050	.075	.100	.124	.149	.174	.199	.224	.249		
50	2.025	4.049	6.074	8.098	10.123	12.148	14.172	16.197	18.221	20.246		
51	.024	.048	.073	.097	.121	.145	.169	.194	.218	.242		
52	.024	.048	.071	.095	.119	.143	.167	.190	.214	.238		
53	.023	.047	.070	.094	.117	.140	.164	.187	.211	.234		
54	.023	.046	.069	.092	.115	.138	.161	.184	.207	.230		
55	.023	.045	.068	.090	.113	.136	.158	.181	.203	.226		
56	.022	.044	.067	.089	.111	.133	.155	.178	.200	.222		
57	.022	.044	.065	.087	.109	.131	.153	.174	.196	.218		
58	.021	.043	.064	.086	.107	.128	.150	.171	.193	.214		
59	.021	.042	.063	.084	.105	.126	.147	.168	.189	.210		
60	2.021	4.041	6.062	8.083	10.103	12.124	14.145	16.166	18.186	20.207		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.426
2	4.852
3	7.277
4	9.703
5	12.129
6	14.555
7	16.981
8	19.406
9	21.832
10	24.258

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
34 00	2.021	4.041	6.062	8.083	10.103	12.124	14.145	16.166	18.186	20.207	1	0.000
01	.020	.041	.061	.081	.101	.122	.142	.162	.183	.203	2	.001
02	.020	.040	.060	.080	.099	.119	.139	.159	.179	.199	3	.001
03	.019	.039	.058	.078	.097	.117	.136	.156	.175	.195	4	.003
04	.019	.038	.057	.076	.095	.115	.134	.153	.172	.191	5	.004
05	.019	.037	.056	.075	.093	.112	.131	.150	.168	.187	6	.006
											7	.008
06	.018	.037	.055	.073	.091	.110	.128	.146	.165	.183	8	.010
07	.018	.036	.054	.072	.089	.107	.125	.143	.161	.179	9	.013
08	.017	.035	.052	.070	.087	.105	.122	.140	.157	.175	10	.016
09	.017	.034	.051	.068	.085	.103	.120	.137	.154	.171		
10	2.017	4.033	6.050	8.067	10.083	12.100	14.117	16.134	18.150	20.167		
11	.016	.033	.049	.065	.081	.098	.114	.130	.147	.163		
12	.016	.032	.048	.064	.079	.095	.111	.127	.143	.159		
13	.015	.031	.046	.062	.077	.093	.108	.124	.139	.155		
14	.015	.030	.045	.060	.075	.091	.106	.121	.136	.151		
15	.015	.029	.044	.059	.073	.088	.103	.118	.132	.147		
16	.014	.029	.043	.057	.071	.086	.100	.114	.129	.143		
17	.014	.028	.042	.056	.069	.083	.097	.111	.125	.139		
18	.013	.027	.040	.054	.067	.081	.094	.108	.121	.135		
19	.013	.026	.039	.052	.065	.079	.092	.105	.118	.131		
20	2.013	4.025	6.038	8.051	10.063	12.076	14.089	16.102	18.114	20.127		
21	.012	.025	.037	.049	.061	.074	.086	.098	.111	.123		
22	.012	.024	.036	.048	.059	.071	.083	.095	.107	.119		
23	.011	.023	.034	.046	.057	.069	.080	.092	.103	.115		
24	.011	.022	.033	.044	.055	.067	.078	.089	.100	.111		
25	.011	.021	.032	.043	.053	.064	.075	.086	.096	.107		
26	.010	.021	.031	.041	.051	.062	.072	.082	.093	.103		
27	.010	.020	.030	.040	.049	.059	.069	.079	.089	.099		
28	.009	.019	.028	.038	.047	.057	.066	.076	.085	.095		
29	.009	.018	.027	.036	.045	.055	.064	.073	.082	.091		
30	2.009	4.017	6.026	8.035	10.043	12.052	14.061	16.070	18.078	20.087		
31	.008	.017	.025	.033	.041	.050	.058	.066	.075	.083		
32	.008	.016	.024	.032	.039	.047	.055	.063	.071	.079		
33	.007	.015	.022	.030	.037	.045	.052	.060	.067	.075		
34	.007	.014	.021	.028	.035	.043	.050	.057	.064	.071		
35	.007	.013	.020	.027	.033	.040	.047	.054	.060	.067		
36	.006	.013	.019	.025	.031	.038	.044	.050	.057	.063		
37	.006	.012	.018	.024	.029	.035	.041	.047	.053	.059		
38	.005	.011	.016	.022	.027	.033	.038	.044	.049	.055		
39	.005	.010	.015	.020	.025	.031	.036	.041	.046	.051		
40	2.005	4.009	6.014	8.019	10.023	12.028	14.033	16.038	18.042	20.047		
41	.004	.009	.013	.017	.021	.026	.030	.034	.039	.043		
42	.004	.008	.012	.016	.019	.023	.027	.031	.035	.039		
43	.003	.007	.010	.014	.017	.021	.024	.028	.031	.035		
44	.003	.006	.009	.012	.015	.019	.022	.025	.028	.031		
45	.003	.005	.008	.011	.013	.016	.019	.022	.024	.027		
46	.002	.005	.007	.009	.011	.014	.016	.018	.021	.023		
47	.002	.004	.006	.008	.009	.011	.013	.015	.017	.019		
48	.001	.003	.004	.006	.007	.009	.010	.012	.013	.015		
49	.001	.002	.003	.004	.005	.007	.008	.009	.010	.011		
50	2.001	4.001	6.002	8.003	10.003	12.004	14.005	16.006	18.006	20.007		
51	.000	.001	.001	.001	.001	.002	.002	.002	.003	.003		
52	.000	.000	.000	.000	9.999	11.999	13.999	15.999	17.999	19.999		
53	1.999	3.999	5.998	7.998	.997	.997	.996	.996	.995	.995		
54	.999	.998	.997	.996	.995	.995	.994	.993	.992	.991		
55	.999	.997	.996	.995	.993	.992	.991	.990	.988	.987		
56	.998	.997	.995	.993	.991	.990	.988	.986	.985	.983		
57	.998	.996	.994	.992	.989	.987	.985	.983	.981	.979		
58	.997	.995	.992	.990	.987	.985	.982	.980	.977	.975		
59	.997	.994	.991	.988	.985	.983	.980	.977	.974	.971		
60	1.997	3.993	5.990	7.987	9.983	11.980	13.977	15.974	17.970	19.967		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.426
2	4.852
3	7.279
4	9.705
5	12.131
6	14.557
7	16.983
8	19.410
9	21.836
10	24.262

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
35 00	1.997	3.993	5.990	7.987	9.983	11.980	13.977	15.974	17.970	19.967	1	0.000
01	.996	.993	.989	.985	.981	.978	.974	.970	.967	.963	2	.001
02	.996	.992	.988	.984	.979	.975	.971	.967	.963	.959	3	.001
03	.995	.991	.986	.982	.977	.973	.968	.964	.959	.955	4	.003
04	.995	.990	.985	.980	.975	.971	.966	.961	.956	.951	5	.004
05	.995	.989	.984	.979	.973	.968	.963	.958	.952	.947	6	.006
											7	.008
06	.994	.989	.983	.977	.971	.966	.960	.954	.949	.943	8	.011
07	.994	.988	.981	.975	.969	.963	.957	.950	.944	.938	9	.013
08	.993	.987	.980	.974	.967	.960	.954	.947	.941	.934	10	.017
09	.993	.986	.979	.972	.965	.958	.951	.944	.937	.930		
10	1.993	3.985	5.978	7.970	9.963	11.956	13.948	15.941	17.933	19.926		
11	.992	.984	.977	.969	.961	.953	.945	.938	.930	.922		
12	.992	.984	.975	.967	.959	.951	.943	.934	.926	.918		
13	.991	.983	.974	.966	.957	.948	.940	.931	.923	.914		
14	.991	.982	.973	.964	.955	.946	.937	.928	.919	.910		
15	.991	.981	.972	.962	.953	.944	.934	.925	.915	.906		
16	.990	.980	.971	.961	.951	.941	.931	.922	.912	.902		
17	.990	.980	.969	.959	.949	.939	.929	.918	.908	.898		
18	.989	.979	.968	.958	.947	.936	.926	.915	.905	.894		
19	.989	.978	.967	.956	.944	.933	.922	.911	.900	.889		
20	1.988	3.977	5.965	7.954	9.942	11.931	13.919	15.908	17.896	19.885		
21	.988	.976	.964	.952	.940	.929	.917	.905	.893	.881		
22	.988	.975	.963	.951	.938	.926	.914	.902	.889	.877		
23	.987	.975	.962	.949	.936	.924	.911	.898	.886	.873		
24	.987	.974	.961	.948	.934	.921	.908	.895	.882	.869		
25	.986	.973	.959	.946	.932	.919	.905	.892	.878	.865		
26	.986	.972	.958	.944	.930	.917	.903	.889	.875	.861		
27	.986	.971	.957	.943	.928	.914	.900	.886	.871	.857		
28	.985	.971	.956	.941	.926	.912	.897	.882	.868	.853		
29	.985	.970	.955	.940	.924	.909	.894	.879	.864	.849		
30	1.984	3.969	5.953	7.938	9.922	11.907	13.891	15.876	17.860	19.845		
31	.984	.968	.952	.936	.920	.904	.888	.872	.856	.840		
32	.984	.967	.951	.934	.918	.902	.885	.869	.852	.836		
33	.983	.966	.950	.933	.916	.899	.882	.866	.849	.832		
34	.983	.966	.948	.931	.914	.897	.880	.862	.845	.828		
35	.982	.965	.947	.930	.912	.894	.877	.859	.842	.824		
36	.982	.964	.946	.928	.910	.892	.874	.856	.838	.820		
37	.982	.963	.945	.926	.908	.890	.871	.853	.834	.816		
38	.981	.962	.944	.925	.906	.887	.868	.850	.831	.812		
39	.981	.962	.942	.923	.904	.885	.866	.846	.827	.808		
40	1.980	3.961	5.941	7.922	9.902	11.882	13.863	15.843	17.824	19.804		
41	.980	.960	.940	.920	.900	.880	.860	.840	.820	.800		
42	.980	.959	.939	.918	.898	.878	.857	.837	.816	.796		
43	.979	.958	.937	.916	.895	.875	.854	.833	.812	.791		
44	.979	.957	.936	.915	.893	.872	.851	.830	.808	.787		
45	.978	.957	.935	.913	.891	.870	.848	.826	.805	.783		
46	.978	.956	.934	.912	.889	.867	.845	.823	.801	.779		
47	.977	.955	.932	.910	.887	.865	.842	.820	.797	.775		
48	.977	.954	.931	.908	.885	.863	.840	.817	.794	.771		
49	.977	.953	.930	.907	.883	.860	.837	.814	.790	.767		
50	1.976	3.953	5.929	7.905	9.881	11.858	13.834	15.810	17.787	19.763		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.427
2	4.853
3	7.280
4	9.706
5	12.133
6	14.560
7	16.986
8	19.413
9	21.839
10	24.266

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
51	.976	.952	.928	.904	.879	.855	.831	.807	.783	.759		
52	.975	.951	.926	.902	.877	.853	.828	.804	.779	.755		
53	.975	.950	.925	.900	.875	.851	.826	.801	.776	.751		
54	.975	.949	.924	.899	.873	.848	.823	.798	.772	.747		
55	.974	.948	.923	.897	.871	.845	.819	.794	.768	.742		
56	.974	.948	.921	.895	.869	.843	.817	.790	.764	.738		
57	.973	.947	.920	.894	.867	.840	.814	.787	.761	.734		
58	.973	.946	.919	.892	.865	.838	.811	.784	.757	.730		
59	.973	.945	.918	.890	.863	.836	.808	.781	.753	.726		
60	1.972	3.944	5.917	7.889	9.861	11.833	13.805	15.778	17.750	19.722		

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{3\,0\,0\,0\,0}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
36 00	1.972	3.944	5.917	7.889	9.861	11.833	13.805	15.778	17.750	19.722	1	0.000
01	.972	.944	.915	.887	.859	.831	.803	.774	.746	.718	2	.001
02	.971	.943	.914	.886	.857	.828	.800	.771	.743	.714	3	.002
03	.971	.942	.913	.884	.855	.826	.797	.768	.739	.710	4	.003
04	.971	.941	.912	.882	.853	.824	.794	.765	.735	.706	5	.004
05	.970	.940	.910	.880	.850	.821	.791	.761	.731	.701	6	.006
											7	.008
06	.970	.939	.909	.879	.848	.818	.788	.758	.727	.697	8	.011
07	.969	.939	.908	.877	.846	.816	.785	.754	.724	.693	9	.014
08	.969	.938	.907	.876	.844	.813	.782	.751	.720	.689	10	.017
09	.968	.937	.905	.874	.842	.811	.779	.748	.716	.685		
10	1.968	3.936	5.904	7.872	9.840	11.808	13.776	15.744	17.712	19.680		
11	.968	.935	.903	.870	.838	.806	.773	.741	.708	.676		
12	.967	.934	.902	.869	.836	.803	.770	.738	.705	.672		
13	.967	.934	.900	.867	.834	.801	.768	.734	.701	.668		
14	.966	.933	.899	.866	.832	.798	.765	.731	.698	.664		
15	.966	.932	.898	.864	.829	.795	.761	.727	.693	.659		
16	.965	.931	.896	.862	.827	.793	.758	.724	.689	.655		
17	.965	.930	.895	.860	.825	.791	.756	.721	.686	.651		
18	.965	.929	.894	.859	.823	.788	.753	.718	.682	.647		
19	.964	.929	.893	.857	.821	.786	.750	.714	.679	.643		
20	1.964	3.928	5.891	7.855	9.819	11.783	13.747	15.710	17.674	19.638		
21	.963	.927	.890	.854	.817	.780	.744	.707	.671	.634		
22	.963	.926	.889	.852	.815	.778	.741	.704	.667	.630		
23	.963	.925	.888	.850	.813	.776	.738	.701	.663	.626		
24	.962	.924	.887	.849	.811	.773	.735	.698	.660	.622		
25	.962	.923	.885	.847	.808	.770	.732	.694	.655	.617		
26	.961	.923	.884	.845	.806	.768	.729	.690	.652	.613		
27	.961	.922	.883	.844	.804	.765	.726	.687	.648	.609		
28	.960	.921	.881	.842	.802	.763	.723	.684	.644	.605		
29	.960	.920	.880	.840	.800	.761	.721	.681	.641	.601		
30	1.960	3.919	5.879	7.838	9.798	11.758	13.717	15.677	17.636	19.596		
31	.959	.918	.878	.837	.796	.755	.714	.674	.633	.592		
32	.959	.918	.876	.835	.794	.753	.712	.670	.629	.588		
33	.958	.917	.875	.834	.792	.750	.709	.667	.626	.584		
34	.958	.916	.874	.832	.790	.748	.706	.664	.622	.580		
35	.957	.915	.872	.830	.787	.745	.702	.660	.617	.575		
36	.957	.914	.871	.828	.785	.743	.700	.657	.614	.571		
37	.957	.913	.870	.827	.783	.740	.697	.654	.610	.567		
38	.956	.913	.869	.825	.781	.738	.694	.650	.607	.563		
39	.956	.912	.868	.824	.779	.735	.691	.647	.603	.559		
40	1.955	3.911	5.866	7.822	9.777	11.732	13.688	15.643	17.599	19.554		
41	.955	.910	.865	.820	.775	.730	.685	.640	.595	.550		
42	.955	.909	.864	.818	.773	.728	.682	.637	.591	.546		
43	.954	.908	.863	.817	.771	.725	.679	.634	.588	.542		
44	.954	.908	.861	.815	.769	.723	.677	.630	.584	.538		
45	.953	.907	.860	.813	.766	.720	.673	.626	.580	.533		
46	.953	.906	.859	.812	.764	.717	.670	.623	.576	.529		
47	.952	.905	.857	.810	.762	.715	.667	.620	.572	.525		
48	.952	.904	.856	.808	.760	.713	.665	.617	.569	.521		
49	.952	.903	.855	.807	.758	.710	.662	.614	.565	.517		
50	1.951	3.902	5.854	7.805	9.756	11.707	13.658	15.610	17.561	19.512		
51	.951	.902	.852	.803	.754	.705	.656	.606	.557	.508		
52	.950	.901	.851	.802	.752	.702	.653	.603	.554	.504		
53	.950	.900	.850	.800	.750	.700	.650	.600	.550	.500		
54	.950	.899	.849	.798	.748	.698	.647	.597	.546	.496		
55	.949	.898	.847	.796	.745	.695	.644	.593	.542	.491		
56	.949	.897	.846	.795	.743	.692	.641	.590	.538	.487		
57	.948	.897	.845	.793	.741	.690	.638	.586	.535	.483		
58	.948	.896	.844	.792	.739	.687	.635	.583	.531	.479		
59	.947	.895	.842	.790	.737	.685	.632	.580	.527	.475		
60	1.947	3.894	5.841	7.788	9.735	11.682	13.629	15.576	17.523	19.470		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.427
2	4.854
3	7.281
4	9.708
5	12.134
6	14.561
7	16.988
8	19.415
9	21.842
10	24.269

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
37 00	1.947	3.894	5.841	7.788	9.735	11.682	13.629	15.576	17.523	19.470	1	0.000
01	.947	.893	.840	.786	.733	.680	.626	.573	.519	.466	2	.001
02	.946	.892	.838	.784	.730	.677	.623	.569	.515	.461	3	.002
03	.946	.891	.837	.783	.728	.674	.620	.566	.511	.457	4	.003
04	.945	.891	.836	.781	.726	.672	.617	.562	.508	.453	5	.004
05	.945	.890	.834	.779	.724	.669	.614	.558	.503	.448	6	.006
											7	.008
06	.944	.889	.833	.778	.722	.666	.611	.555	.500	.444	8	.011
07	.944	.888	.832	.776	.720	.664	.608	.552	.496	.440	9	.014
08	.943	.887	.830	.774	.717	.661	.604	.548	.491	.435	10	.017
09	.943	.886	.829	.772	.715	.659	.602	.545	.488	.431		
10	1.943	3.885	5.828	7.771	9.713	11.656	13.599	15.542	17.484	19.427		
11	.942	.884	.827	.769	.711	.653	.595	.538	.480	.422		
12	.942	.884	.825	.767	.709	.651	.593	.534	.476	.418		
13	.941	.883	.824	.766	.707	.648	.590	.531	.473	.414		
14	.941	.882	.823	.764	.704	.645	.586	.527	.468	.409		
15	.940	.881	.821	.762	.702	.643	.583	.524	.464	.405		
16	.940	.880	.820	.760	.700	.641	.581	.521	.461	.401		
17	.940	.879	.819	.758	.698	.638	.577	.517	.456	.396		
18	.939	.878	.818	.757	.696	.635	.574	.514	.453	.392		
19	.939	.878	.816	.755	.694	.633	.572	.510	.449	.388		
20	1.938	3.877	5.815	7.753	9.691	11.630	13.568	15.506	17.445	19.383		
21	.938	.876	.814	.752	.689	.627	.565	.503	.441	.379		
22	.937	.875	.812	.750	.687	.625	.562	.500	.437	.375		
23	.937	.874	.811	.748	.685	.622	.559	.496	.433	.370		
24	.937	.873	.810	.746	.683	.620	.556	.493	.429	.366		
25	.936	.872	.809	.745	.681	.617	.553	.490	.426	.362		
26	.936	.871	.807	.743	.678	.614	.550	.486	.421	.357		
27	.935	.871	.806	.741	.676	.612	.547	.482	.418	.353		
28	.935	.870	.805	.740	.674	.609	.544	.479	.414	.349		
29	.934	.869	.803	.738	.672	.606	.541	.475	.410	.344		
30	1.934	3.868	5.802	7.736	9.670	11.604	13.538	15.472	17.406	19.340		
31	.934	.867	.801	.735	.668	.602	.536	.470	.403	.337		
32	.933	.866	.800	.733	.666	.599	.532	.466	.399	.332		
33	.933	.866	.798	.731	.664	.597	.530	.462	.395	.328		
34	.932	.865	.797	.730	.662	.594	.527	.459	.392	.324		
35	.932	.864	.796	.728	.659	.591	.523	.455	.387	.319		
36	.931	.863	.794	.726	.657	.589	.520	.452	.383	.315		
37	.931	.862	.793	.724	.655	.587	.518	.449	.380	.311		
38	.931	.861	.792	.722	.653	.584	.514	.445	.375	.306		
39	.930	.860	.791	.721	.651	.581	.511	.442	.372	.302		
40	1.930	3.860	5.789	7.719	9.649	11.579	13.509	15.438	17.368	19.298		
41	.929	.859	.788	.717	.646	.576	.505	.434	.364	.293		
42	.929	.858	.787	.716	.644	.573	.502	.431	.360	.289		
43	.928	.857	.785	.714	.642	.571	.499	.428	.356	.285		
44	.928	.856	.784	.712	.640	.568	.496	.424	.352	.280		
45	.928	.855	.783	.710	.638	.566	.493	.421	.348	.276		
46	.927	.854	.782	.709	.636	.563	.490	.418	.345	.272		
47	.927	.853	.780	.707	.633	.560	.487	.414	.340	.267		
48	.926	.853	.779	.705	.631	.558	.484	.410	.337	.263		
49	.926	.852	.778	.704	.629	.555	.481	.407	.333	.259		
50	1.925	3.851	5.776	7.702	9.627	11.552	13.478	15.403	17.329	19.254		
51	.925	.850	.775	.700	.625	.550	.475	.400	.325	.250		
52	.925	.849	.774	.698	.623	.548	.472	.397	.321	.246		
53	.924	.848	.772	.696	.620	.545	.469	.393	.317	.241		
54	.924	.847	.771	.695	.618	.542	.466	.390	.313	.237		
55	.923	.847	.770	.693	.616	.540	.463	.386	.310	.233		
56	.923	.846	.768	.691	.614	.537	.460	.382	.305	.228		
57	.922	.845	.767	.690	.612	.534	.457	.379	.302	.224		
58	.922	.844	.766	.688	.610	.532	.454	.376	.298	.220		
59	.921	.843	.764	.686	.607	.529	.450	.372	.293	.215		
60	1.921	3.842	5.763	7.684	9.605	11.527	13.448	15.369	17.290	19.211		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.427
2	4.855
3	7.282
4	9.709
5	12.136
6	14.564
7	16.991
8	19.418
9	21.846
10	24.273

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
38 00	1.921	3.842	5.763	7.684	9.605	11.527	13.448	15.369	17.290	19.211	1	0.000
01	.921	.841	.762	.683	.603	.524	.445	.366	.286	.207	2	.001
02	.920	.840	.761	.681	.601	.521	.441	.362	.282	.202	3	.002
03	.920	.840	.759	.679	.599	.519	.439	.358	.278	.198	4	.003
04	.919	.839	.758	.678	.597	.516	.436	.355	.275	.194	5	.004
05	.919	.838	.757	.676	.594	.513	.432	.351	.270	.189	6	.006
											7	.008
06	.918	.837	.755	.674	.592	.511	.429	.348	.266	.185	8	.011
07	.918	.836	.754	.672	.590	.509	.427	.345	.263	.181	9	.014
08	.918	.835	.753	.670	.588	.506	.423	.341	.258	.176	10	.017
09	.917	.834	.752	.669	.586	.503	.420	.338	.255	.172		
10	1.917	3.834	5.750	7.667	9.584	11.501	13.418	15.334	17.251	19.168		
11	.916	.833	.749	.665	.581	.498	.414	.330	.247	.163		
12	.916	.832	.748	.664	.579	.495	.411	.327	.243	.159		
13	.915	.831	.746	.662	.577	.493	.408	.324	.239	.155		
14	.915	.830	.745	.660	.575	.490	.405	.320	.235	.150		
15	.915	.829	.744	.658	.573	.488	.402	.317	.231	.146		
16	.914	.828	.743	.657	.571	.485	.399	.314	.228	.142		
17	.914	.827	.741	.655	.568	.482	.396	.310	.223	.137		
18	.913	.827	.740	.653	.566	.480	.393	.306	.220	.133		
19	.913	.826	.739	.652	.564	.477	.390	.303	.216	.129		
20	1.912	3.825	5.737	7.650	9.562	11.474	13.387	15.299	17.212	19.124		
21	.912	.824	.736	.648	.559	.471	.383	.295	.207	.119		
22	.911	.823	.734	.646	.557	.469	.380	.292	.203	.115		
23	.911	.822	.733	.644	.555	.466	.377	.288	.199	.110		
24	.911	.821	.732	.642	.553	.464	.374	.285	.195	.106		
25	.910	.820	.731	.641	.551	.461	.371	.282	.192	.102		
26	.910	.819	.729	.639	.548	.458	.368	.278	.187	.097		
27	.909	.819	.728	.637	.546	.456	.365	.274	.184	.093		
28	.909	.818	.727	.636	.544	.453	.362	.271	.180	.089		
29	.908	.817	.725	.634	.542	.450	.359	.267	.176	.084		
30	1.908	3.816	5.724	7.632	9.540	11.448	13.356	15.264	17.172	19.080		
31	.908	.815	.723	.630	.538	.446	.353	.261	.168	.076		
32	.907	.814	.721	.628	.535	.443	.350	.257	.164	.071		
33	.907	.813	.720	.627	.533	.440	.347	.254	.160	.067		
34	.906	.813	.719	.625	.531	.438	.344	.250	.157	.063		
35	.906	.812	.717	.623	.529	.435	.341	.246	.152	.058		
36	.905	.811	.716	.622	.527	.432	.338	.243	.149	.054		
37	.905	.810	.715	.620	.525	.430	.335	.240	.145	.050		
38	.904	.809	.713	.618	.522	.427	.331	.236	.140	.045		
39	.904	.808	.712	.616	.520	.425	.329	.233	.137	.041		
40	1.904	3.807	5.711	7.615	9.518	11.422	13.326	15.230	17.133	19.037		
41	.903	.806	.710	.613	.516	.419	.322	.226	.129	.032		
42	.903	.805	.708	.611	.513	.416	.319	.222	.124	.027		
43	.902	.805	.707	.609	.511	.414	.316	.218	.121	.023		
44	.902	.804	.705	.607	.509	.411	.313	.214	.116	.018	Latitude interval.	Meridional distances.
45	.901	.803	.704	.606	.507	.408	.310	.211	.113	.014		
46	.901	.802	.703	.604	.505	.406	.307	.208	.109	.010		
47	.900	.801	.701	.602	.502	.403	.303	.204	.104	.005		
48	.900	.800	.700	.600	.500	.401	.301	.201	.101	.001		
49	.900	.799	.699	.599	.498	.398	.298	.198	.097	18.997		
50	1.899	3.798	5.698	7.597	9.496	11.395	13.294	15.194	17.093	18.992		
51	.899	.798	.696	.595	.494	.393	.292	.190	.089	.988		*Inches.*
52	.898	.797	.695	.594	.492	.390	.289	.187	.086	.984	′	
53	.898	.796	.694	.592	.489	.387	.285	.183	.081	.979	1	2.428
54	.897	.795	.692	.590	.487	.385	.282	.180	.077	.975	2	4.855
55	.897	.794	.691	.588	.485	.383	.280	.177	.074	.971	3	7.283
											4	9.711
56	.897	.793	.690	.586	.483	.380	.276	.173	.069	.966	5	12.138
57	.896	.792	.689	.585	.481	.377	.273	.170	.066	.962	6	14.566
58	.896	.792	.687	.583	.479	.375	.271	.166	.062	.958	7	16.994
59	.895	.791	.686	.581	.476	.372	.267	.162	.058	.953	8	19.422
60	1.895	3.790	5.684	7.579	9.474	11.369	13.264	15.158	17.053	18.948	9	21.849
											10	24.277

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
39 00	1.895	3.790	5.684	7.579	9.474	11.369	13.264	15.158	17.053	18.948	1	0.000
01	.894	.789	.683	.578	.472	.366	.261	.155	.050	.944	2	.001
02	.894	.788	.682	.576	.469	.363	.257	.151	.045	.939	3	.002
03	.893	.787	.680	.574	.467	.361	.254	.148	.041	.935	4	.003
04	.893	.786	.679	.572	.465	.358	.251	.144	.037	.930	5	.004
05	.893	.785	.678	.570	.463	.356	.248	.141	.033	.926	6	.006
											7	.008
06	.892	.784	.676	.568	.460	.353	.245	.137	.029	.921	8	.011
07	.892	.783	.675	.567	.458	.350	.242	.134	.025	.917	9	.014
08	.891	.782	.674	.565	.456	.347	.238	.130	.021	.912	10	.017
09	.891	.782	.672	.563	.454	.345	.236	.126	.017	.908		
10	1.890	3.781	5.671	7.561	9.451	11.342	13.232	15.122	17.013	18.903		
11	.890	.780	.670	.560	.449	.339	.229	.119	.009	.899		
12	.889	.779	.668	.558	.447	.336	.226	.115	.005	.894		
13	.889	.778	.667	.556	.445	.334	.223	.112	.001	.890		
14	.888	.777	.665	.554	.442	.331	.219	.108	16.996	.885		
15	.888	.776	.664	.552	.440	.329	.217	.105	.993	.881		
16	.888	.775	.663	.550	.438	.326	.213	.101	.988	.876		
17	.887	.774	.662	.549	.436	.323	.210	.098	.985	.872		
18	.887	.773	.660	.547	.433	.320	.207	.094	.980	.867		
19	.886	.773	.659	.545	.431	.318	.204	.090	.977	.863		
20	1.886	3.772	5.657	7.543	9.429	11.315	13.201	15.086	16.972	18.858		
21	.885	.771	.656	.542	.427	.312	.198	.083	.969	.854		
22	.885	.770	.655	.540	.424	.309	.194	.079	.964	.849		
23	.884	.769	.653	.538	.422	.307	.191	.076	.960	.845		
24	.884	.768	.652	.536	.420	.304	.188	.072	.956	.840		
25	.884	.767	.651	.534	.418	.302	.185	.069	.952	.836		
26	.883	.766	.649	.532	.415	.299	.182	.065	.948	.831		
27	.883	.765	.648	.531	.413	.296	.179	.062	.944	.827		
28	.882	.764	.647	.529	.411	.293	.175	.058	.940	.822		
29	.882	.764	.645	.527	.409	.291	.173	.054	.936	.818		
30	1.881	3.763	5.644	7.525	9.406	11.288	13.169	15.050	16.932	18.813		
31	.881	.762	.643	.524	.404	.285	.166	.047	.928	.809		
32	.880	.761	.641	.522	.402	.282	.163	.043	.924	.804		
33	.880	.760	.640	.520	.400	.280	.160	.040	.920	.800		
34	.879	.759	.638	.518	.397	.277	.156	.036	.915	.795		
35	.879	.758	.637	.516	.395	.275	.154	.033	.912	.791		
36	.879	.757	.636	.514	.393	.272	.150	.029	.907	.786		
37	.878	.756	.635	.513	.391	.269	.147	.026	.904	.782		
38	.878	.755	.633	.511	.388	.266	.144	.022	.899	.777		
39	.877	.755	.632	.509	.386	.264	.141	.018	.896	.773		
40	1.877	3.754	5.630	7.507	9.384	11.261	13.138	15.014	16.891	18.768		
41	.876	.753	.629	.506	.382	.258	.135	.011	.888	.764		
42	.876	.752	.628	.504	.379	.255	.131	.007	.883	.759		
43	.875	.751	.626	.502	.377	.253	.128	.004	.879	.755		
44	.875	.750	.625	.500	.375	.250	.125	.000	.875	.750		
45	.875	.749	.624	.498	.373	.248	.122	14.997	.871	.746		
46	.874	.748	.622	.496	.370	.245	.119	.993	.867	.741		
47	.874	.747	.621	.495	.368	.242	.116	.990	.863	.737		
48	.873	.746	.620	.493	.366	.239	.112	.986	.859	.732		
49	.873	.746	.618	.491	.364	.237	.110	.982	.855	.728		
50	1.872	3.745	5.617	7.489	9.361	11.234	13.106	14.978	16.851	18.723		
51	.872	.744	.616	.488	.359	.231	.103	.975	.847	.719		
52	.871	.743	.614	.486	.357	.228	.100	.971	.843	.714		
53	.871	.742	.613	.484	.355	.226	.097	.968	.839	.710		
54	.870	.741	.611	.482	.352	.223	.093	.964	.834	.705		
55	.870	.740	.610	.480	.350	.221	.091	.961	.831	.701		
56	.870	.739	.609	.478	.348	.218	.087	.957	.826	.696		
57	.869	.738	.608	.477	.346	.215	.084	.954	.823	.692		
58	.869	.738	.606	.475	.344	.213	.082	.950	.819	.688		
59	.868	.737	.605	.473	.341	.210	.078	.946	.815	.683		
60	1.868	3.736	5.603	7.471	9.339	11.207	13.075	14.942	16.810	18.678		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.428
2	4.856
3	7.284
4	9.712
5	12.140
6	14.569
7	16.997
8	19.425
9	21.853
10	24.281

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
40 00	1.868	3.736	5.603	7.471	9.339	11.207	13.075	14.942	16.810	18.678	1	0.000
01	.867	.735	.602	.470	.337	.204	.072	.939	.807	.674	2	.001
02	.867	.734	.601	.468	.334	.201	.068	.935	.802	.669	3	.002
03	.866	.733	.599	.466	.332	.199	.065	.932	.798	.665	4	.003
04	.866	.732	.598	.464	.330	.196	.062	.928	.794	.660	5	.004
05	.866	.731	.597	.462	.328	.194	.059	.925	.790	.656	6	.006
											7	.009
06	.865	.730	.595	.460	.325	.191	.056	.921	.786	.651	8	.011
07	.865	.729	.594	.459	.323	.188	.053	.918	.782	.647	9	.014
08	.864	.728	.593	.457	.321	.185	.049	.914	.778	.642	10	.017
09	.864	.728	.591	.455	.319	.183	.047	.910	.774	.638		
10	1.863	3.727	5.590	7.453	9.316	11.180	13.043	14.906	16.770	18.633		
11	.863	.726	.588	.451	.314	.177	.040	.902	.765	.628		
12	.862	.725	.587	.449	.311	.174	.036	.898	.761	.623		
13	.862	.724	.586	.448	.309	.171	.033	.895	.757	.619		
14	.861	.723	.584	.446	.307	.168	.030	.891	.753	.614		
15	.861	.722	.583	.444	.305	.166	.027	.888	.749	.610		
16	.860	.721	.581	.442	.302	.163	.023	.884	.744	.605		
17	.860	.720	.580	.440	.300	.161	.021	.881	.741	.601		
18	.860	.719	.579	.438	.298	.158	.017	.877	.736	.596		
19	.859	.718	.578	.437	.296	.155	.014	.874	.733	.592		
20	1.859	3.717	5.576	7.435	9.293	11.152	13.011	14.870	16.728	18.587		
21	.858	.717	.575	.433	.291	.150	.008	.866	.725	.583		
22	.858	.716	.573	.431	.289	.147	.005	.862	.720	.578		
23	.857	.715	.572	.429	.286	.144	.001	.858	.716	.573		
24	.857	.714	.570	.427	.284	.141	12.998	.854	.711	.568		
25	.856	.713	.569	.426	.282	.138	.995	.851	.708	.564		
26	.856	.712	.568	.424	.279	.135	.991	.847	.703	.559		
27	.855	.711	.566	.422	.277	.133	.988	.844	.699	.555		
28	.855	.710	.565	.420	.275	.130	.985	.840	.695	.550		
29	.855	.709	.564	.418	.273	.128	.982	.837	.691	.546		
30	1.854	3.708	5.562	7.416	9.270	11.125	12.979	14.833	16.687	18.541		
31	.854	.707	.561	.415	.268	.122	.976	.830	.683	.537		
32	.853	.706	.560	.413	.266	.119	.972	.826	.679	.532		
33	.853	.706	.558	.411	.264	.117	.970	.822	.675	.528		
34	.852	.705	.557	.409	.261	.114	.966	.818	.671	.523		
35	.852	.704	.555	.407	.259	.111	.963	.814	.666	.518		
36	.851	.703	.554	.405	.256	.108	.959	.810	.662	.513		
37	.851	.702	.553	.404	.254	.105	.956	.807	.658	.509		
38	.850	.701	.551	.402	.252	.102	.953	.803	.654	.504		
39	.850	.700	.550	.400	.250	.100	.950	.800	.650	.500		
40	1.849	3.699	5.548	7.398	9.247	11.097	12.946	14.796	16.645	18.495		
41	.849	.698	.547	.396	.245	.095	.944	.793	.642	.491		
42	.849	.697	.546	.394	.243	.092	.940	.789	.637	.486		
43	.848	.696	.545	.393	.241	.089	.937	.786	.634	.482		
44	.848	.695	.543	.391	.238	.086	.934	.782	.629	.477		
45	.847	.695	.542	.389	.236	.084	.931	.778	.626	.473		
46	.847	.694	.540	.387	.234	.081	.928	.774	.621	.468		
47	.846	.693	.539	.385	.231	.078	.924	.770	.617	.463		
48	.846	.692	.537	.383	.229	.075	.921	.766	.612	.458		
49	.845	.691	.536	.382	.227	.072	.918	.763	.609	.454		
50	1.845	3.690	5.535	7.380	9.224	11.069	12.914	14.759	16.604	18.449		
51	.844	.689	.533	.378	.222	.067	.911	.756	.600	.445		
52	.844	.688	.532	.376	.220	.064	.908	.752	.596	.440		
53	.844	.687	.531	.374	.218	.062	.905	.749	.592	.436		
54	.843	.686	.529	.372	.215	.059	.902	.745	.588	.431		
55	.843	.685	.528	.371	.213	.056	.899	.742	.584	.427		
56	.842	.684	.527	.369	.211	.053	.895	.738	.580	.422		
57	.842	.684	.525	.367	.209	.051	.893	.734	.576	.418		
58	.841	.683	.524	.365	.206	.048	.889	.730	.572	.413		
59	.841	.682	.522	.363	.204	.045	.886	.726	.567	.408		
60	1.840	3.681	5.521	7.361	9.201	11.042	12.882	14.722	16.563	18.403		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.429
2	4.857
3	7.286
4	9.714
5	12.143
6	14.572
7	17.000
8	19.429
9	21.857
10	24.286

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
41 00	1.840	3.681	5.521	7.361	9.201	11.042	12.882	14.722	16.563	18.403	1	0.000
01	.840	.680	.519	.359	.199	.039	.879	.718	.558	.398	2	.001
02	.839	.679	.518	.358	.197	.036	.876	.715	.555	.394	3	.002
03	.839	.678	.517	.356	.194	.033	.872	.711	.550	.389	4	.003
04	.838	.677	.515	.354	.192	.030	.869	.707	.546	.384	5	.004
05	.838	.676	.514	.352	.190	.028	.866	.704	.542	.380	6	.006
											7	.009
06	.837	.675	.512	.350	.187	.025	.862	.700	.537	.375	8	.011
07	.837	.674	.511	.348	.185	.022	.859	.696	.533	.370	9	.014
08	.837	.673	.510	.346	.183	.020	.856	.693	.529	.366	10	.018
09	.836	.672	.508	.344	.180	.017	.853	.689	.525	.361		
10	1.836	3.671	5.507	7.342	9.178	11.014	12.849	14.685	16.520	18.356		
11	.835	.670	.506	.341	.176	.011	.846	.682	.517	.352		
12	.835	.669	.504	.339	.173	.008	.843	.678	.512	.347		
13	.834	.668	.503	.337	.171	.005	.839	.674	.508	.342		
14	.834	.668	.501	.335	.169	.003	.837	.670	.504	.338		
15	.833	.667	.500	.333	.166	.000	.833	.666	.500	.333		
16	.833	.666	.498	.331	.164	10.997	.830	.662	.495	.328		
17	.832	.665	.497	.330	.162	.994	.827	.659	.492	.324		
18	.832	.664	.496	.328	.159	.991	.823	.655	.487	.319		
19	.831	.663	.494	.326	.157	.988	.820	.651	.483	.314		
20	1.831	3.662	5.493	7.324	9.155	10.986	12.817	14.648	16.479	18.310		
21	.830	.661	.491	.322	.152	.983	.813	.644	.474	.305		
22	.830	.660	.490	.320	.150	.980	.810	.640	.470	.300		
23	.830	.659	.489	.318	.148	.978	.807	.637	.466	.296		
24	.829	.658	.487	.316	.145	.975	.804	.633	.462	.291		
25	.829	.657	.486	.314	.143	.972	.800	.629	.457	.286		
26	.828	.656	.485	.313	.141	.969	.797	.626	.454	.282		
27	.828	.655	.483	.311	.138	.966	.794	.622	.449	.277		
28	.827	.654	.482	.309	.136	.963	.790	.618	.445	.272		
29	.827	.654	.480	.307	.134	.961	.788	.614	.441	.268		
30	1.826	3.653	5.479	7.305	9.131	10.958	12.784	14.610	16.437	18.263		
31	.826	.652	.477	.303	.129	.955	.781	.606	.432	.258		
32	.825	.651	.476	.301	.126	.952	.777	.602	.428	.253		
33	.825	.650	.474	.299	.124	.949	.774	.598	.423	.248		
34	.824	.649	.473	.297	.121	.946	.770	.594	.419	.243		
35	.824	.648	.472	.296	.119	.943	.767	.591	.415	.239		
36	.823	.647	.470	.294	.117	.940	.764	.587	.411	.234		
37	.823	.646	.469	.292	.114	.937	.760	.583	.406	.229		
38	.822	.645	.467	.290	.112	.935	.757	.580	.402	.225		
39	.822	.644	.466	.288	.110	.932	.754	.576	.398	.220		
40	1.821	3.643	5.464	7.286	9.107	10.929	12.750	14.572	16.393	18.215		
41	.821	.642	.463	.284	.105	.927	.748	.569	.390	.211		
42	.821	.641	.462	.282	.103	.924	.744	.565	.385	.206		
43	.820	.640	.460	.280	.100	.921	.741	.561	.381	.201		
44	.820	.639	.459	.279	.098	.918	.738	.558	.377	.197		
45	.819	.638	.458	.277	.096	.915	.734	.554	.373	.192		
46	.819	.637	.456	.275	.093	.912	.731	.550	.368	.187		
47	.818	.637	.455	.273	.091	.910	.728	.546	.365	.183		
48	.818	.636	.453	.271	.089	.907	.725	.542	.360	.178		
49	.817	.635	.452	.269	.086	.904	.721	.538	.356	.173		
50	1.817	3.634	5.451	7.268	9.084	10.901	12.718	14.535	16.352	18.169		
51	.816	.633	.449	.266	.082	.898	.715	.531	.348	.164		
52	.816	.632	.448	.264	.079	.895	.711	.527	.343	.159		
53	.815	.631	.446	.262	.077	.893	.708	.524	.339	.155		
54	.815	.630	.445	.260	.075	.890	.705	.520	.335	.150		
55	.814	.629	.443	.258	.072	.887	.701	.516	.330	.145		
56	.814	.628	.442	.256	.070	.885	.699	.513	.327	.141		
57	.814	.627	.441	.254	.068	.882	.695	.509	.322	.136		
58	.813	.626	.439	.252	.065	.879	.692	.505	.318	.131		
59	.813	.625	.438	.251	.063	.876	.689	.502	.314	.127		
60	1.812	3.624	5.437	7.249	9.061	10.873	12.685	14.498	16.310	18.122		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.429
2	4.858
3	7.287
4	9.716
5	12.145
6	14.574
7	17.003
8	19.432
9	21.861
10	24.290

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{50000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
42 00	1.812	3.624	5.437	7.249	9.061	10.873	12.685	14.498	16.310	18.122	1	0.000
01	.812	.623	.435	.247	.058	.870	.682	.494	.305	.117	2	.001
02	.811	.622	.434	.245	.056	.867	.678	.490	.301	.112	3	.002
03	.811	.622	.432	.243	.054	.865	.676	.486	.297	.108	4	.003
04	.810	.621	.431	.241	.051	.862	.672	.482	.293	.103	5	.004
05	.810	.620	.429	.239	.049	.859	.669	.478	.288	.098	6	.006
											7	.009
06	.809	.619	.428	.237	.046	.856	.665	.474	.284	.093	8	.011
07	.809	.618	.427	.236	.044	.853	.662	.471	.280	.089	9	.014
08	.808	.617	.425	.234	.042	.850	.659	.467	.276	.084	10	.018
09	.808	.616	.424	.232	.039	.847	.655	.463	.271	.079		
10	1.807	3.615	5.422	7.230	9.037	10.844	12.652	14.459	16.267	18.074		
11	.807	.614	.421	.228	.035	.842	.649	.456	.263	.070		
12	.806	.613	.419	.226	.032	.839	.645	.452	.258	.065		
13	.806	.612	.418	.224	.030	.836	.642	.448	.254	.060		
14	.805	.611	.416	.222	.027	.833	.638	.444	.249	.055		
15	.805	.610	.415	.220	.025	.831	.636	.441	.246	.051		
16	.805	.609	.414	.218	.023	.828	.632	.437	.241	.046		
17	.804	.608	.412	.216	.020	.825	.629	.433	.237	.041		
18	.804	.607	.411	.214	.018	.822	.625	.429	.232	.036		
19	.803	.606	.410	.213	.016	.819	.622	.426	.229	.032		
20	1.803	3.605	5.408	7.211	9.013	10.816	12.619	14.422	16.224	18.027		
21	.802	.604	.407	.209	.011	.813	.615	.418	.220	.022		
22	.802	.603	.405	.207	.008	.810	.612	.414	.215	.017		
23	.801	.603	.404	.205	.006	.808	.609	.410	.212	.013		
24	.801	.602	.402	.203	.004	.805	.606	.406	.207	.008		
25	.800	.601	.401	.201	.001	.802	.602	.402	.203	.003		
26	.800	.600	.399	.199	8.999	.799	.599	.398	.198	17.998		
27	.799	.599	.398	.198	.997	.796	.596	.395	.195	.994		
28	.799	.598	.397	.196	.994	.793	.592	.391	.190	.989		
29	.798	.597	.395	.194	.992	.790	.589	.387	.186	.984		
30	1.798	3.596	5.394	7.192	8.989	10.787	12.585	14.383	16.181	17.979		
31	.797	.595	.392	.190	.987	.785	.582	.380	.177	.975		
32	.797	.594	.391	.188	.985	.782	.579	.376	.173	.970		
33	.796	.593	.389	.186	.982	.779	.575	.372	.168	.965		
34	.796	.592	.388	.184	.980	.776	.572	.368	.164	.960		
35	.796	.591	.387	.182	.978	.774	.569	.365	.160	.956		
36	.795	.590	.385	.180	.975	.771	.566	.361	.156	.951		
37	.795	.589	.384	.178	.973	.768	.562	.357	.151	.946		
38	.794	.588	.382	.176	.970	.765	.559	.353	.147	.941		
39	.794	.587	.381	.175	.968	.762	.556	.350	.143	.937		
40	1.793	3.586	5.380	7.173	8.966	10.759	12.552	14.346	16.139	17.932		
41	.793	.585	.378	.171	.963	.756	.549	.342	.134	.927		
42	.792	.584	.377	.169	.961	.753	.545	.338	.130	.922		
43	.792	.584	.375	.167	.959	.751	.543	.334	.126	.918		
44	.791	.583	.374	.165	.956	.748	.539	.330	.122	.913		
45	.791	.582	.372	.163	.954	.745	.536	.326	.117	.908		
46	.790	.581	.371	.161	.951	.742	.532	.322	.113	.903		
47	.790	.580	.369	.159	.949	.739	.529	.318	.108	.898		
48	.789	.579	.368	.158	.947	.736	.526	.315	.105	.894		
49	.789	.578	.367	.156	.944	.733	.522	.311	.100	.889		
50	1.788	3.577	5.365	7.154	8.942	10.730	12.519	14.307	16.096	17.884		
51	.788	.576	.364	.152	.940	.728	.516	.304	.092	.880		
52	.787	.575	.362	.150	.937	.725	.512	.300	.087	.875		
53	.787	.574	.361	.148	.935	.722	.509	.296	.083	.870		
54	.786	.573	.359	.146	.932	.719	.505	.292	.078	.865		
55	.786	.572	.358	.144	.930	.717	.503	.289	.075	.861		
56	.786	.571	.357	.142	.928	.714	.499	.285	.070	.856		
57	.785	.570	.355	.140	.925	.711	.496	.281	.066	.851		
58	.785	.569	.354	.138	.923	.708	.492	.277	.061	.846		
59	.784	.568	.353	.137	.921	.705	.489	.274	.058	.842		
60	1.784	3.567	5.351	7.134	8.918	10.702	12.485	14.269	16.052	17.836		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.429
2	4.859
3	7.288
4	9.718
5	12.147
6	14.576
7	17.006
8	19.435
9	21.865
10	24.294

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
43 00	1.784	3.567	5.351	7.134	8.918	10.702	12.485	14.269	16.052	17.836	1	0.000
01	.783	.566	.349	.132	.915	.699	.482	.265	.048	.831	2	.001
02	.783	.565	.348	.130	.913	.696	.478	.261	.043	.826	3	.002
03	.782	.564	.346	.128	.910	.693	.475	.257	.039	.821	4	.003
04	.782	.563	.345	.126	.908	.690	.471	.253	.034	.816	5	.004
05	.781	.562	.344	.125	.906	.687	.468	.250	.031	.812	6	.006
											7	.009
06	.781	.561	.342	.123	.903	.684	.465	.246	.026	.807	8	.011
07	.780	.560	.341	.121	.901	.681	.461	.242	.022	.802	9	.014
08	.780	.559	.339	.119	.898	.678	.458	.238	.017	.797	10	.018
09	.779	.558	.338	.117	.896	.675	.454	.234	.013	.792		
10	1.779	3.557	5.336	7.115	8.893	10.672	12.451	14.230	16.008	17.787		
11	.778	.556	.335	.113	.891	.669	.447	.226	.004	.782		
12	.778	.556	.333	.111	.889	.667	.445	.222	.000	.778		
13	.777	.555	.332	.109	.886	.664	.441	.218	15.996	.773		
14	.777	.554	.330	.107	.884	.661	.438	.214	.991	.768		
15	.776	.553	.329	.105	.881	.658	.434	.210	.987	.763		
16	.776	.552	.327	.103	.879	.655	.431	.206	.982	.758		
17	.775	.551	.326	.101	.876	.652	.427	.202	.978	.753		
18	.775	.550	.324	.099	.874	.649	.424	.198	.973	.748		
19	.774	.549	.323	.097	.871	.646	.420	.194	.969	.743		
20	1.774	3.548	5.321	7.095	8.869	10.643	12.417	14.190	15.964	17.738		
21	.773	.547	.320	.093	.866	.640	.413	.186	.960	.733		
22	.773	.546	.318	.091	.864	.637	.410	.182	.955	.728		
23	.772	.545	.317	.090	.862	.634	.407	.179	.952	.724		
24	.772	.544	.316	.088	.859	.631	.403	.175	.947	.719		
25	.771	.543	.314	.086	.857	.628	.400	.171	.943	.714		
26	.771	.542	.313	.084	.854	.625	.396	.167	.938	.709		
27	.770	.541	.311	.082	.852	.622	.393	.163	.934	.704		
28	.770	.540	.310	.080	.849	.619	.389	.159	.929	.699		
29	.769	.539	.308	.078	.847	.616	.386	.155	.925	.694		
30	1.769	3.538	5.307	7.076	8.844	10.613	12.382	14.151	15.920	17.689		
31	.768	.537	.305	.074	.842	.610	.379	.147	.916	.684		
32	.768	.536	.304	.072	.840	.608	.376	.144	.912	.680		
33	.767	.535	.302	.070	.837	.605	.372	.140	.907	.675		
34	.767	.534	.301	.068	.835	.602	.369	.136	.903	.670		
35	.766	.533	.299	.066	.832	.599	.365	.132	.898	.665		
36	.766	.532	.298	.064	.830	.596	.362	.128	.894	.660		
37	.765	.531	.296	.062	.827	.593	.358	.124	.889	.655		
38	.765	.530	.295	.060	.825	.590	.355	.120	.885	.650		
39	.764	.529	.293	.058	.822	.587	.351	.116	.880	.645		
40	1.764	3.528	5.292	7.056	8.820	10.584	12.348	14.112	15.876	17.640		
41	.764	.527	.291	.054	.818	.582	.345	.109	.872	.636		
42	.763	.526	.289	.052	.815	.579	.342	.105	.868	.631		
43	.763	.525	.288	.050	.813	.576	.338	.101	.863	.626		
44	.762	.524	.286	.048	.810	.573	.335	.097	.859	.621		
45	.762	.523	.285	.046	.808	.570	.331	.093	.854	.616		
46	.761	.522	.283	.044	.805	.567	.328	.089	.850	.611		
47	.761	.521	.282	.042	.803	.564	.324	.085	.845	.606		
48	.760	.520	.280	.040	.800	.561	.321	.081	.841	.601		
49	.760	.519	.279	.038	.798	.558	.317	.077	.836	.596		
50	1.759	3.518	5.278	7.037	8.796	10.555	12.314	14.074	15.833	17.592		
51	.759	.517	.276	.035	.793	.552	.311	.070	.828	.587		
52	.758	.516	.275	.033	.791	.549	.307	.066	.824	.582		
53	.758	.515	.273	.031	.788	.546	.304	.062	.819	.577		
54	.757	.514	.272	.029	.786	.543	.300	.058	.815	.572		
55	.757	.513	.270	.027	.783	.540	.297	.054	.810	.567		
56	.756	.512	.269	.025	.781	.537	.293	.050	.806	.562		
57	.756	.511	.267	.023	.778	.534	.290	.046	.801	.557		
58	.755	.510	.266	.021	.776	.531	.286	.042	.797	.552		
59	.755	.510	.264	.019	.774	.529	.284	.038	.793	.548		
60	1.754	3.509	5.263	7.017	8.771	10.526	12.280	14.034	15.789	17.543		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.430
2	4.860
3	7.289
4	9.719
5	12.149
6	14.579
7	17.009
8	19.438
9	21.868
10	24.298

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
44 00	1.754	3.509	5.263	7.017	8.771	10.526	12.280	14.034	15.789	17.543	1	0.000
01	.754	.508	.261	.015	.769	.523	.277	.030	.784	.538	2	.001
02	.753	.507	.260	.013	.766	.520	.273	.026	.780	.533	3	.002
03	.753	.506	.258	.011	.764	.517	.270	.022	.775	.528	4	.003
04	.752	.505	.257	.009	.761	.514	.266	.018	.771	.523	5	.004
05	.752	.504	.255	.007	.759	.511	.263	.014	.766	.518	6	.006
											7	.009
06	.751	.503	.254	.005	.756	.508	.259	.010	.762	.513	8	.011
07	.751	.502	.252	.003	.754	.505	.256	.006	.757	.508	9	.014
08	.750	.501	.251	.001	.751	.502	.252	.002	.753	.503	10	.018
09	.750	.500	.249	6.999	.749	.499	.249	13.998	.748	.498		
10	1.749	3.499	5.248	6.997	8.746	10.496	12.245	13.994	15.744	17.493		
11	.749	.498	.247	.996	.744	.493	.242	.991	.740	.489		
12	.748	.497	.245	.994	.742	.490	.239	.987	.736	.484		
13	.748	.496	.244	.992	.739	.487	.235	.983	.731	.479		
14	.747	.495	.242	.990	.737	.484	.232	.979	.727	.474		
15	.747	.494	.241	.988	.734	.481	.228	.975	.722	.469		
16	.746	.493	.239	.986	.732	.478	.225	.971	.718	.464		
17	.746	.492	.238	.984	.729	.475	.221	.967	.713	.459		
18	.745	.491	.236	.982	.727	.472	.218	.963	.709	.454		
19	.745	.490	.235	.980	.724	.469	.214	.959	.704	.449		
20	1.744	3.489	5.233	6.978	8.722	10.466	12.211	13.955	15.700	17.444		
21	.744	.488	.232	.976	.719	.463	.207	.951	.695	.439		
22	.743	.487	.230	.974	.717	.460	.204	.947	.691	.434		
23	.743	.486	.229	.972	.714	.457	.200	.943	.686	.429		
24	.742	.485	.227	.970	.712	.454	.197	.939	.682	.424		
25	.742	.484	.226	.968	.709	.451	.193	.935	.677	.419		
26	.741	.483	.224	.966	.707	.448	.190	.931	.673	.414		
27	.741	.482	.223	.964	.704	.445	.186	.927	.668	.409		
28	.740	.481	.221	.962	.702	.442	.183	.923	.664	.404		
29	.740	.480	.220	.960	.699	.439	.179	.919	.659	.399		
30	1.739	3.479	5.218	6.958	8.697	10.436	12.176	13.915	15.655	17.394		
31	.739	.478	.217	.956	.695	.434	.173	.912	.651	.390		
32	.738	.477	.215	.954	.692	.431	.169	.908	.646	.385		
33	.738	.476	.214	.952	.690	.428	.166	.904	.642	.380		
34	.737	.475	.212	.950	.687	.425	.162	.900	.637	.375		
35	.737	.474	.211	.948	.685	.422	.159	.896	.633	.370		
36	.736	.473	.209	.946	.682	.419	.155	.892	.628	.365		
37	.736	.472	.208	.944	.680	.416	.152	.888	.624	.360		
38	.735	.471	.206	.942	.677	.413	.148	.884	.619	.355		
39	.735	.470	.205	.940	.675	.410	.145	.880	.615	.350		
40	1.734	3.469	5.203	6.938	8.672	10.407	12.141	13.876	15.610	17.345		
41	.734	.468	.202	.936	.670	.404	.138	.872	.606	.340		
42	.733	.467	.200	.934	.667	.401	.134	.868	.601	.335		
43	.733	.466	.199	.932	.665	.398	.131	.864	.597	.330		
44	.732	.465	.197	.930	.662	.395	.127	.860	.592	.325		
45	.732	.464	.196	.928	.660	.392	.124	.856	.588	.320		
46	.731	.463	.194	.926	.657	.389	.120	.852	.583	.315		
47	.731	.462	.193	.924	.655	.386	.117	.848	.579	.310		
48	.730	.461	.191	.922	.652	.383	.113	.844	.574	.305		
49	.730	.460	.190	.920	.650	.380	.110	.840	.570	.300		
50	1.729	3.459	5.188	6.918	8.647	10.377	12.106	13.836	15.565	17.295		
51	.729	.458	.187	.916	.645	.375	.104	.833	.562	.291	′	*Inches.*
52	.729	.457	.186	.914	.643	.372	.100	.829	.557	.286	1	2.430
53	.728	.456	.184	.912	.640	.369	.097	.825	.553	.281	2	4.861
54	.728	.455	.183	.910	.638	.366	.093	.821	.548	.276	3	7.291
55	.727	.454	.181	.908	.635	.363	.090	.817	.544	.271	4	9.722
											5	12.152
56	.727	.453	.180	.906	.633	.360	.086	.813	.539	.266	6	14.582
57	.726	.452	.178	.904	.630	.357	.083	.809	.535	.261	7	17.013
58	.726	.451	.177	.902	.628	.354	.079	.805	.530	.256	8	19.443
59	.725	.450	.175	.900	.625	.351	.076	.801	.526	.251	9	21.874
60	1.725	3.449	5.174	6.898	8.623	10.348	12.072	13.797	15.521	17.246	10	24.304

Latitude interval. / Meridional distances.

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
45 00	1.725	3.449	5.174	6.898	8.623	10.348	12.072	13.797	15.521	17.246	1	0.000
01	.724	.448	.172	.896	.620	.345	.069	.793	.517	.241	2	.001
02	.724	.447	.171	.894	.618	.342	.065	.789	.512	.236	3	.002
03	.723	.446	.169	.892	.615	.339	.062	.785	.508	.231	4	.003
04	.723	.445	.168	.890	.613	.336	.058	.781	.503	.226	5	.004
05	.722	.444	.166	.888	.610	.333	.055	.777	.499	.221	6	.006
											7	.009
06	.722	.443	.165	.886	.608	.330	.051	.773	.494	.216	8	.011
07	.721	.442	.163	.884	.605	.327	.048	.769	.490	.211	9	.014
08	.721	.441	.162	.882	.603	.324	.044	.765	.485	.206	10	.018
09	.720	.440	.160	.880	.600	.321	.041	.761	.481	.201		
10	1.720	3.439	5.159	6.878	8.598	10.318	12.037	13.757	15.476	17.196		
11	.719	.438	.157	.876	.595	.315	.034	.753	.472	.191		
12	.719	.437	.156	.874	.593	.312	.030	.749	.467	.186		
13	.718	.436	.154	.872	.590	.309	.027	.745	.463	.181		
14	.718	.435	.153	.870	.588	.306	.023	.741	.458	.176		
15	.717	.434	.151	.868	.585	.303	.020	.737	.454	.171		
16	.717	.433	.150	.866	.583	.300	.016	.733	.449	.166		
17	.716	.432	.148	.864	.580	.297	.013	.729	.445	.161		
18	.716	.431	.147	.862	.578	.294	.009	.725	.440	.156		
19	.715	.430	.145	.860	.575	.291	.006	.721	.436	.151		
20	1.715	3.429	5.144	6.858	8.573	10.288	12.002	13.717	15.431	17.146		
21	.714	.428	.142	.856	.570	.285	11.999	.713	.427	.141		
22	.714	.427	.141	.854	.568	.282	.995	.709	.422	.136		
23	.713	.426	.139	.852	.565	.279	.992	.705	.418	.131		
24	.713	.425	.138	.850	.563	.276	.988	.701	.413	.126		
25	.712	.424	.136	.848	.560	.273	.985	.697	.409	.121		
26	.712	.423	.135	.846	.558	.270	.981	.693	.404	.116		
27	.711	.422	.133	.844	.555	.267	.978	.689	.400	.111		
28	.711	.421	.132	.842	.553	.264	.974	.685	.395	.106		
29	.710	.420	.130	.840	.550	.261	.971	.681	.391	.101		
30	1.710	3.419	5.129	6.838	8.548	10.258	11.967	13.677	15.386	17.096		
31	.709	.418	.127	.836	.545	.254	.963	.672	.381	.090		
32	.708	.417	.125	.834	.542	.251	.959	.668	.376	.085		
33	.708	.416	.124	.832	.540	.248	.956	.664	.372	.080		
34	.707	.415	.122	.830	.537	.245	.952	.660	.367	.075		
35	.707	.414	.121	.828	.535	.242	.949	.656	.363	.070		
36	.706	.413	.119	.826	.532	.239	.945	.652	.358	.065		
37	.706	.412	.118	.824	.530	.236	.942	.648	.354	.060		
38	.705	.411	.116	.822	.527	.233	.938	.644	.349	.055		
39	.705	.410	.115	.820	.525	.230	.935	.640	.345	.050		
40	1.704	3.409	5.113	6.818	8.522	10.227	11.931	13.636	15.340	17.045		
41	.704	.408	.112	.816	.520	.224	.928	.632	.336	.040		
42	.703	.407	.110	.814	.517	.221	.924	.628	.331	.035		
43	.703	.406	.109	.812	.515	.218	.921	.624	.327	.030		
44	.702	.405	.107	.810	.512	.215	.917	.620	.322	.025		
45	.702	.404	.106	.808	.510	.212	.914	.616	.318	.020	Latitude interval.	Meridional distances.
46	.701	.403	.104	.806	.507	.209	.910	.612	.313	.015		
47	.701	.402	.103	.804	.505	.206	.907	.608	.309	.010		
48	.700	.401	.101	.802	.502	.203	.903	.604	.304	.005		
49	.700	.400	.100	.800	.500	.200	.900	.600	.300	.000		
50	1.699	3.399	5.098	6.798	8.497	10.197	11.896	13.596	15.295	16.995		
												Inches.
51	.699	.398	.097	.796	.495	.194	.893	.592	.291	.990	′	
52	.698	.397	.095	.794	.492	.191	.889	.588	.286	.985	1	2.431
53	.698	.396	.094	.792	.490	.188	.886	.584	.282	.980	2	4.862
54	.697	.395	.092	.790	.487	.185	.882	.580	.277	.975	3	7.292
55	.697	.394	.091	.788	.485	.182	.879	.576	.273	.970	4	9.723
											5	12.154
56	.696	.393	.089	.786	.482	.179	.875	.572	.268	.965	6	14.585
57	.696	.392	.088	.784	.480	.176	.872	.568	.264	.960	7	17.016
58	.695	.391	.086	.782	.477	.173	.868	.564	.259	.955	8	19.446
59	.695	.390	.085	.780	.475	.170	.865	.560	.255	.950	9	21.877
60	1.694	3.389	5.083	6.778	8.472	10.166	11.861	13.555	15.250	16.944	10	24.308

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
46 00	1.694	3.389	5.083	6.778	8.472	10.166	11.861	13.555	15.250	16.944	1	0.000
01	.694	.388	.082	.776	.469	.163	.857	.551	.245	.939	2	.001
02	.693	.387	.080	.774	.467	.160	.854	.547	.241	.934	3	.002
03	.693	.386	.079	.772	.464	.157	.850	.543	.236	.929	4	.003
04	.692	.385	.077	.770	.462	.154	.847	.539	.232	.924	5	.004
05	.692	.384	.075	.767	.459	.151	.843	.534	.226	.918	6	.006
											7	.009
06	.691	.383	.074	.765	.456	.148	.839	.530	.221	.913	8	.011
07	.691	.382	.072	.763	.454	.145	.836	.526	.217	.908	9	.014
08	.690	.381	.071	.761	.451	.142	.832	.522	.213	.903	10	.018
09	.690	.380	.069	.759	.449	.139	.829	.518	.208	.898		
10	1.689	3.379	5.068	6.757	8.446	10.136	11.825	13.514	15.204	16.893		
11	.689	.378	.066	.755	.444	.133	.822	.510	.199	.888		
12	.688	.376	.065	.753	.441	.129	.817	.506	.194	.882		
13	.688	.375	.063	.751	.438	.126	.814	.502	.189	.877		
14	.687	.374	.062	.749	.436	.123	.810	.498	.185	.872		
15	.687	.373	.060	.747	.433	.120	.807	.494	.180	.867		
16	.686	.372	.059	.745	.431	.117	.803	.490	.176	.862		
17	.686	.371	.057	.743	.428	.114	.800	.486	.171	.857		
18	.685	.370	.056	.741	.426	.111	.796	.482	.167	.852		
19	.685	.369	.054	.738	.423	.108	.792	.477	.161	.846		
20	1.684	3.368	5.052	6.736	8.420	10.105	11.789	13.473	15.157	16.841		
21	.684	.367	.051	.734	.418	.102	.785	.469	.152	.836		
22	.683	.366	.049	.732	.415	.099	.782	.465	.148	.831		
23	.683	.365	.048	.730	.413	.096	.778	.461	.143	.826		
24	.682	.364	.046	.728	.410	.093	.775	.457	.139	.821		
25	.682	.363	.045	.726	.408	.090	.771	.453	.134	.816		
26	.681	.362	.043	.724	.405	.086	.767	.448	.129	.810		
27	.680	.361	.041	.722	.402	.083	.763	.444	.124	.805		
28	.680	.360	.040	.720	.400	.080	.760	.440	.120	.800		
29	.679	.359	.038	.718	.397	.077	.756	.436	.115	.795		
30	1.679	3.358	5.037	6.716	8.395	10.074	11.753	13.432	15.111	16.790		
31	.678	.357	.035	.714	.392	.071	.749	.428	.106	.785		
32	.678	.356	.034	.712	.390	.068	.746	.424	.102	.780		
33	.677	.355	.032	.710	.387	.064	.742	.419	.097	.774		
34	.677	.354	.031	.708	.384	.061	.738	.415	.092	.769		
35	.676	.353	.029	.706	.382	.058	.735	.411	.088	.764		
36	.676	.352	.028	.704	.379	.055	.731	.407	.083	.759		
37	.675	.351	.026	.702	.377	.052	.728	.403	.079	.754		
38	.675	.350	.025	.700	.374	.049	.724	.399	.074	.749		
39	.674	.349	.023	.698	.372	.046	.721	.395	.070	.744		
40	1.674	3.348	5.021	6.695	8.369	10.043	11.717	13.390	15.064	16.738		
41	.673	.347	.020	.693	.366	.040	.713	.386	.060	.733		
42	.673	.346	.018	.691	.364	.037	.710	.382	.055	.728		
43	.672	.345	.017	.689	.361	.033	.706	.378	.051	.723		
44	.672	.344	.015	.687	.359	.031	.703	.374	.046	.718		
45	.671	.343	.014	.685	.356	.028	.699	.370	.042	.713		
46	.671	.342	.012	.683	.354	.025	.696	.366	.037	.708		
47	.670	.340	.011	.681	.351	.021	.691	.362	.032	.702		
48	.670	.339	.009	.679	.348	.018	.688	.358	.027	.697		
49	.669	.338	.008	.677	.346	.015	.684	.354	.023	.692		
50	1.669	3.337	5.006	6.675	8.343	10.012	11.681	13.350	15.018	11.687		
51	.668	.336	.005	.673	.341	.009	.677	.346	.014	.682		
52	.668	.335	.003	.671	.338	.006	.674	.342	.009	.677		
53	.667	.334	.002	.669	.336	.003	.670	.338	.005	.672		
54	.667	.333	.000	.666	.333	.000	.666	.333	14.999	.666		
55	.666	.332	4.998	.664	.330	9.997	.663	.329	.995	.661		
56	.666	.331	.997	.662	.328	.994	.659	.325	.990	.656		
57	.665	.330	.996	.660	.325	.991	.656	.321	.986	.651		
58	.665	.329	.994	.658	.323	.988	.652	.317	.981	.646		
59	.664	.328	.992	.656	.320	.985	.649	.313	.977	.641		
60	1.664	3.327	4.991	6.654	8.318	9.982	11.645	13.309	14.972	16.636		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.431
2	4.863
3	7.294
4	9.725
5	12.156
6	14.588
7	17.019
8	19.450
9	21.882
10	24.313

TABLE XI.—*Co-ordinates for projection of maps.* *Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
47 00	1.664	3.327	4.991	6.654	8.318	9.982	11.645	13.309	14.972	16.636	1	0.000
01	.663	.326	.989	.652	.315	.979	.642	.305	.968	.631	2	.001
02	.663	.325	.988	.650	.313	.976	.638	.301	.963	.626	3	.002
03	.662	.324	.986	.648	.310	.973	.635	.297	.959	.621	4	.003
04	.661	.323	.984	.646	.307	.969	.630	.292	.953	.615	5	.004
05	.661	.322	.983	.644	.305	.966	.627	.288	.949	.610	6	.006
											7	.009
06	.660	.321	.981	.642	.302	.963	.623	.284	.944	.605	8	.011
07	.660	.320	.980	.640	.300	.960	.620	.280	.940	.600	9	.014
08	.659	.319	.978	.638	.297	.956	.616	.275	.935	.594	10	.018
09	.659	.318	.977	.636	.294	.953	.612	.271	.930	.589		
10	1.658	3.317	4.975	6.634	8.292	9.950	11.609	13.267	14.926	16.584		
11	.658	.316	.974	.632	.289	.947	.605	.263	.921	.579		
12	.657	.315	.972	.629	.286	.944	.601	.258	.916	.573		
13	.657	.314	.970	.627	.284	.941	.598	.254	.911	.568		
14	.656	.313	.969	.625	.281	.938	.594	.250	.907	.563		
15	.656	.312	.967	.623	.279	.935	.591	.246	.902	.558		
16	.655	.310	.966	.621	.276	.931	.586	.242	.897	.552		
17	.655	.309	.964	.619	.273	.928	.583	.238	.892	.547		
18	.654	.308	.963	.617	.271	.925	.579	.234	.888	.542		
19	.654	.307	.961	.615	.268	.922	.576	.230	.883	.537		
20	1.653	3.306	4.959	6.612	8.265	9.919	11.572	13.225	14.878	16.531		
21	.653	.305	.958	.610	.263	.916	.568	.221	.873	.526		
22	.652	.304	.956	.608	.260	.913	.565	.217	.869	.521		
23	.652	.303	.955	.606	.258	.910	.561	.213	.864	.516		
24	.651	.302	.953	.604	.255	.906	.557	.208	.859	.510		
25	.650	.301	.951	.602	.252	.903	.553	.204	.854	.505		
26	.650	.300	.950	.600	.250	.900	.550	.200	.850	.500		
27	.649	.299	.948	.598	.247	.897	.546	.196	.845	.495		
28	.649	.298	.947	.596	.244	.893	.542	.191	.840	.489		
29	.648	.297	.945	.594	.242	.890	.539	.187	.836	.484		
30	1.648	3.296	4.944	6.592	8.239	9.887	11.535	13.183	14.831	16.479		
31	.647	.295	.942	.590	.237	.884	.532	.179	.827	.474		
32	.647	.294	.941	.588	.234	.881	.528	.175	.822	.469		
33	.646	.293	.939	.586	.232	.878	.525	.171	.818	.464		
34	.646	.292	.937	.583	.229	.875	.521	.166	.812	.458		
35	.645	.291	.936	.581	.226	.872	.517	.162	.808	.453		
36	.645	.290	.934	.579	.224	.869	.514	.158	.803	.448		
37	.644	.289	.933	.577	.221	.866	.510	.154	.799	.443		
38	.644	.287	.931	.575	.218	.862	.506	.150	.793	.437		
39	.643	.286	.930	.573	.216	.859	.502	.146	.789	.432		
40	1.643	3.285	4.928	6.571	8.213	9.856	11.499	13.142	14.784	16.427		
41	.642	.284	.927	.569	.211	.853	.495	.138	.780	.422		
42	.642	.283	.925	.566	.208	.850	.491	.133	.774	.416		
43	.641	.282	.923	.564	.205	.847	.488	.129	.770	.411		
44	.641	.281	.922	.562	.203	.844	.484	.125	.765	.406		
45	.640	.280	.920	.560	.200	.841	.481	.121	.761	.401		
46	.639	.279	.918	.558	.197	.837	.476	.116	.755	.395		
47	.639	.278	.917	.556	.195	.834	.473	.112	.751	.390		
48	.638	.277	.915	.554	.192	.831	.469	.108	.746	.385		
49	.638	.276	.914	.552	.190	.828	.466	.104	.742	.380		
50	1.637	3.275	4.912	6.550	8.187	9.824	11.462	13.099	14.737	16.374		
51	.637	.274	.911	.548	.184	.821	.458	.095	.732	.369		
52	.636	.273	.909	.546	.182	.818	.455	.091	.728	.364		
53	.636	.272	.908	.544	.179	.815	.451	.087	.723	.359		
54	.635	.271	.906	.541	.176	.812	.447	.082	.718	.353		
55	.635	.270	.904	.539	.174	.809	.444	.078	.713	.348		
56	.634	.269	.903	.537	.171	.806	.440	.074	.709	.343		
57	.634	.268	.901	.535	.169	.803	.437	.070	.704	.338		
58	.633	.266	.900	.533	.166	.799	.432	.066	.699	.332		
59	.633	.265	.898	.531	.163	.796	.429	.062	.694	.327		
60	1.632	3.265	4.897	6.529	8.161	9.794	11.426	13.058	14.691	16.323		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.432
2	4.863
3	7.294
4	9.726
5	12.157
6	14.589
7	17.020
8	19.452
9	21.883
10	24.315

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
48 00	1.632	3.265	4.897	6.529	8.161	9.794	11.426	13.058	14.691	16.323	1	0.000
01	.632	.264	.895	.527	.159	.791	.423	.054	.686	.318	2	.001
02	.631	.263	.894	.525	.156	.788	.419	.050	.682	.313	3	.002
03	.631	.262	.892	.523	.154	.785	.416	.046	.677	.308	4	.003
04	.630	.260	.891	.521	.151	.781	.411	.042	.672	.302	5	.004
05	.630	.259	.889	.519	.148	.778	.408	.038	.667	.297	6	.036
											7	.009
06	.629	.258	.888	.517	.146	.775	.404	.034	.663	.292	8	.011
07	.629	.257	.886	.515	.143	.772	.401	.030	.658	.287	9	.014
08	.628	.256	.884	.512	.140	.769	.397	.025	.653	.281	10	.018
09	.628	.255	.883	.510	.138	.766	.393	.021	.648	.276		
10	1.627	3.254	4.881	6.508	8.135	9.763	11.390	13.017	14.644	16.271		
11	.627	.253	.880	.506	.133	.760	.386	.013	.639	.266		
12	.626	.252	.878	.504	.130	.756	.382	.008	.634	.260		
13	.625	.251	.876	.502	.127	.753	.378	.004	.629	.255		
14	.625	.250	.875	.500	.125	.750	.375	.000	.625	.250		
15	.624	.249	.873	.498	.122	.747	.371	12.996	.620	.245		
16	.624	.248	.872	.496	.119	.743	.367	.991	.615	.239		
17	.623	.247	.870	.494	.117	.740	.364	.987	.611	.234		
18	.623	.246	.869	.492	.114	.737	.360	.983	.606	.229		
19	.622	.245	.867	.489	.111	.734	.356	.978	.601	.223		
20	1.622	3.243	4.865	6.487	8.108	9.730	11.352	12.974	14.595	16.217		
21	.621	.242	.864	.485	.106	.727	.348	.970	.591	.212		
22	.621	.241	.862	.483	.103	.724	.345	.966	.586	.207		
23	.620	.240	.861	.481	.101	.721	.341	.962	.582	.202		
24	.620	.239	.859	.478	.098	.718	.337	.957	.576	.196		
25	.619	.238	.857	.476	.095	.715	.334	.953	.572	.191		
26	.619	.237	.856	.474	.093	.712	.330	.949	.567	.186		
27	.618	.236	.854	.472	.090	.709	.327	.945	.563	.181		
28	.617	.235	.852	.470	.087	.705	.322	.940	.557	.175		
29	.617	.234	.851	.468	.085	.702	.319	.936	.553	.170		
30	1.616	3.233	4.849	6.466	8.082	9.699	11.315	12.932	14.548	16.165		
31	.616	.232	.848	.464	.080	.696	.312	.928	.544	.160		
32	.615	.231	.846	.462	.077	.692	.308	.923	.539	.154		
33	.615	.230	.845	.460	.074	.689	.304	.919	.534	.149		
34	.614	.229	.843	.458	.072	.686	.301	.915	.530	.144		
35	.614	.228	.842	.456	.069	.683	.297	.911	.525	.139		
36	.613	.227	.840	.453	.066	.680	.293	.906	.520	.133		
37	.613	.226	.838	.451	.064	.677	.290	.902	.515	.128		
38	.612	.225	.837	.449	.061	.674	.286	.898	.511	.123		
39	.612	.223	.835	.447	.058	.670	.282	.894	.505	.117		
40	1.611	3.222	4.833	6.444	8.055	9.667	11.278	12.889	14.500	16.111		
41	.611	.221	.832	.442	.053	.664	.274	.885	.495	.106		
42	.610	.220	.830	.440	.050	.661	.271	.881	.491	.101		
43	.610	.219	.829	.438	.048	.658	.267	.877	.486	.096		
44	.609	.218	.827	.436	.045	.654	.263	.872	.481	.090		
45	.608	.217	.825	.434	.042	.651	.259	.868	.476	.085		
46	.608	.216	.824	.432	.040	.648	.256	.864	.472	.080		
47	.607	.215	.822	.430	.037	.645	.252	.860	.467	.075		
48	.607	.214	.821	.428	.034	.641	.248	.855	.462	.069		
49	.606	.213	.819	.426	.032	.638	.245	.851	.458	.064		
50	1.606	3.212	4.818	6.424	8.029	9.635	11.241	12.847	14.453	16.059		
51	.605	.211	.816	.422	.027	.632	.238	.843	.449	.054		
52	.605	.210	.814	.419	.024	.629	.234	.838	.443	.048		
53	.604	.209	.813	.417	.021	.626	.230	.834	.439	.043		
54	.604	.208	.811	.415	.019	.623	.227	.830	.434	.038		
55	.603	.207	.810	.413	.016	.620	.223	.826	.430	.033		
56	.603	.206	.808	.411	.014	.617	.220	.822	.425	.028		
57	.602	.205	.807	.409	.011	.614	.216	.818	.421	.023		
58	.602	.204	.805	.407	.009	.611	.213	.814	.416	.018		
59	.601	.202	.804	.405	.006	.607	.208	.810	.411	.012		
60	1.600	3.201	4.801	6.402	8.002	9.603	11.203	12.804	14.404	16.005		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.432
2	4.864
3	7.296
4	9.728
5	12.160
6	14.592
7	17.024
8	19.456
9	21.888
10	24.320

TABLE XI.—*Co-ordinates for projection of maps. Scale* $\frac{1}{30000}$.

[Derivation of table explained in section (5); use of table explained on page 22.]

Latitude of parallel.	Abscissas of developed parallel.										Longitude interval.	Ordinates of developed parallel.
	1′ longitude.	2′ longitude.	3′ longitude.	4′ longitude.	5′ longitude.	6′ longitude.	7′ longitude.	8′ longitude.	9′ longitude.	10′ longitude.		
° ′	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	′	*Inches.*
49 00	1.600	3.201	4.801	6.402	8.002	9.603	11.203	12.804	14.404	16.005	1	0.000
01	.600	.200	.800	.400	.000	.600	.200	.800	.400	.000	2	.001
02	.599	.199	.798	.398	7.997	.596	.196	.795	.395	15.994	3	.002
03	.599	.198	.797	.396	.994	.593	.192	.791	.390	.989	4	.003
04	.598	.197	.795	.394	.992	.590	.189	.787	.386	.984	5	.004
05	.598	.196	.793	.391	.989	.587	.185	.782	.380	.978	6	.006
											7	.009
06	.597	.195	.792	.389	.986	.584	.181	.778	.376	.973	8	.011
07	.597	.194	.790	.387	.984	.581	.178	.774	.371	.968	9	.014
08	.596	.192	.789	.385	.981	.577	.173	.770	.366	.962	10	.018
09	.596	.191	.787	.383	.978	.574	.170	.766	.361	.957		
10	1.595	3.190	4.786	6.381	7.976	9.571	11.166	12.762	14.357	15.952		
11	.595	.189	.784	.378	.973	.568	.162	.757	.351	.946		
12	.594	.188	.782	.376	.970	.564	.158	.752	.346	.940		
13	.593	.187	.780	.374	.967	.561	.154	.748	.341	.935		
14	.593	.186	.779	.372	.964	.557	.150	.743	.336	.929		
15	.592	.185	.777	.370	.962	.554	.147	.739	.332	.924		
16	.592	.184	.776	.368	.959	.551	.143	.735	.327	.919		
17	.591	.183	.774	.365	.956	.548	.139	.730	.322	.913		
18	.591	.182	.772	.363	.954	.545	.136	.726	.317	.908		
19	.590	.181	.771	.361	.951	.542	.132	.722	.313	.903		
20	1.590	3.179	4.769	6.359	7.948	9.538	11.128	12.718	14.307	15.897		
21	.589	.179	.768	.357	.946	.536	.125	.714	.304	.893		
22	.589	.178	.766	.355	.944	.533	.122	.710	.299	.888		
23	.588	.176	.765	.353	.941	.529	.117	.706	.294	.882		
24	.588	.175	.763	.351	.938	.526	.114	.702	.289	.877		
25	.587	.174	.762	.349	.936	.523	.110	.698	.285	.872		
26	.587	.173	.760	.346	.933	.520	.106	.693	.279	.866		
27	.586	.172	.758	.344	.930	.517	.103	.689	.275	.861		
28	.586	.171	.757	.342	.928	.514	.099	.685	.270	.856		
29	.585	.170	.755	.340	.925	.510	.095	.680	.265	.850		
30	1.584	3.169	4.753	6.338	7.922	9.507	11.091	12.676	14.260	15.845		
31	.584	.168	.752	.336	.919	.503	.087	.671	.255	.839		
32	.583	.167	.750	.333	.916	.500	.083	.666	.250	.833		
33	.583	.166	.748	.331	.914	.497	.080	.662	.245	.828		
34	.582	.165	.747	.329	.911	.494	.076	.658	.241	.823		
35	.582	.163	.745	.327	.908	.490	.072	.654	.235	.817		
36	.581	.162	.744	.325	.906	.487	.068	.650	.231	.812		
37	.581	.161	.742	.323	.903	.484	.065	.646	.226	.807		
38	.580	.160	.740	.320	.900	.481	.061	.641	.221	.801		
39	.580	.159	.739	.318	.898	.478	.057	.637	.216	.796		
40	1.579	3.158	4.737	6.316	7.895	9.475	11.054	12.633	14.212	15.791		
41	.578	.157	.735	.314	.892	.471	.049	.628	.206	.785		
42	.578	.156	.734	.312	.890	.468	.046	.624	.202	.780		
43	.577	.155	.732	.310	.887	.465	.042	.620	.197	.775		
44	.577	.154	.731	.308	.884	.461	.038	.615	.192	.769		
45	.576	.153	.729	.306	.882	.458	.035	.611	.188	.764		
46	.576	.152	.728	.304	.879	.455	.031	.607	.183	.759		
47	.575	.151	.726	.301	.876	.452	.027	.602	.178	.753		
48	.575	.150	.724	.299	.874	.449	.024	.598	.173	.748		
49	.574	.149	.723	.297	.871	.446	.020	.594	.169	.743		
50	1.574	3.147	4.721	6.295	7.868	9.442	11.016	12.590	14.163	15.737		
51	.573	.146	.719	.292	.865	.439	.012	.585	.158	.731		
52	.573	.145	.718	.290	.863	.436	.008	.581	.153	.726		
53	.572	.144	.716	.288	.860	.432	.004	.576	.148	.720		
54	.571	.143	.714	.286	.857	.429	.000	.572	.143	.715		
55	.571	.142	.713	.284	.855	.426	10.997	.568	.139	.710		
56	.570	.141	.711	.282	.852	.422	.993	.563	.134	.704		
57	.570	.140	.710	.280	.849	.419	.989	.559	.129	.699		
58	.569	.139	.708	.278	.847	.416	.986	.555	.125	.694		
59	.569	.138	.706	.275	.844	.413	.982	.550	.119	.688		
60	1.568	3.136	4.705	6.273	7.841	9.409	10.977	12.546	14.114	15.682		

Latitude interval.	Meridional distances.
′	*Inches.*
1	2.432
2	4.865
3	7.297
4	9.730
5	12.162
6	14.594
7	17.027
8	19.459
9	21.892
10	24.324

TABLE XII.—*Areas of quadrilaterals of Earth's surface of* 1° *extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′		° ′	
0 00	4752.33	22 30	4399.30
0 30	52.16	23 00	83.60
1 00	51.63	23 30	67.57
1 30	50.75	24 00	51.21
2 00	49.52	24 30	34.52
2 30	47.93	25 00	17.51
3 00	46.00	25 30	00.17
3 30	43.71	26 00	4282.50
4 00	41.07	26 30	64.51
4 30	38.08	27 00	46.20
5 00	34.74	27 30	27.56
5 30	31.04	28 00	08.61
6 00	27.00	28 30	4189.33
6 30	22.61	29 00	69.74
7 00	17.86	29 30	49.83
7 30	12.76	30 00	29.60
8 00	07.32	30 30	09.06
8 30	01.52	31 00	4088.21
9 00	4695.38	31 30	67.05
9 30	88.89	32 00	45.57
10 00	82.05	32 30	23.79
10 30	74.86	33 00	01.69
11 00	67.32	33 30	3979.30
11 30	59.43	34 00	56.59
12 00	51.20	34 30	33.59
12 30	42.63	35 00	10.28
13 00	33.71	35 30	3886.67
13 30	24.44	36 00	62.76
14 00	14.82	36 30	38.56
14 30	04.87	37 00	14.06
15 00	4594.57	37 30	3789.26
15 30	83.92	38 00	64.18
16 00	72.94	38 30	38.80
16 30	61.61	39 00	13.14
17 00	49.94	39 30	3687.18
17 30	37.93	40 00	60.95
18 00	25.59	40 30	34.42
18 30	12.90	41 00	07.62
19 00	4499.87	41 30	3580.54
19 30	86.51	42 00	53.17
20 00	72.81	42 30	25.54
20 30	58.78	43 00	3497.62
21 00	44.41	43 30	69.44
21 30	29.71	44 00	40.98
22 00	14.67	44 30	12.28
22 30	4399.30	45 00	3383.27

TABLE XII.—*Areas of quadrilaterals of Earth's surface of 1° extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′		° ′	
45 00	3383.27	67 30	1839.84
45 30	54.01	68 00	01.16
46 00	24.49	68 30	1762.33
46 30	3294.71	69 00	23.36
47 00	64.68	69 30	1684.24
47 30	34.39	70 00	45.00
48 00	03.84	70 30	05.62
48 30	3173.04	71 00	1566.10
49 00	41.99	71 30	26.46
49 30	10.69	72 00	1486.70
50 00	3079.15	72 30	46.81
50 30	47.37	73 00	06.81
51 00	15.34	73 30	1366.69
51 30	2983.08	74 00	26.46
52 00	50.58	74 30	1286.12
52 30	17.85	75 00	45.68
53 00	2884.88	75 30	05.13
53 30	51.68	76 00	1164.49
54 00	18.27	76 30	23.75
54 30	2784.62	77 00	1082.91
55 00	50.76	77 60	41.99
55 30	16.67	78 00	00.99
56 00	2682.37	78 30	959.90
56 30	47.85	79 00	18.73
57 00	13.13	79 30	877.49
57 30	2578.19	80 00	36.18
58 00	43.05	80 30	794.79
58 30	07.70	81 00	53.34
59 00	2472.16	81 30	11.83
59 30	36.42	82 00	670.27
60 00	00.48	82 30	28.64
60 30	2364.34	83 00	586.97
61 00	28.02	83 30	45.24
61 30	2291.51	84 00	03.47
62 00	54.82	84 30	461.66
62 30	17.94	85 00	19.81
63 00	2180.89	85 30	377.93
63 30	43.66	86 00	36.02
64 00	06.26	86 30	294.08
64 30	2068.68	87 00	52.11
65 00	30.94	87 30	10.12
65 30	1993.04	88 00	168.12
66 00	54.97	88 30	126.10
66 30	16.75	89 00	84.07
67 00	1878.37	89 30	42.04
67 30	39.84	90 00	00.00

TABLE XIII.—*Areas of quadrilaterals of Earth's surface of 30′ extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′		° ′	
0 15	1188.08	22 45	1097.88
0 45	1188.00	23 15	1093.92
1 15	1187.82	23 45	1089.87
1 45	1187.56	24 15	1085.74
2 15	1187.20	24 45	1081.52
2 45	1186.76	25 15	1077.23
3 15	1186.24	25 45	1072.85
3 45	1185.62	26 15	1068.40
4 15	1184.92	26 45	1063.86
4 45	1184.13	27 15	1059.24
5 15	1183.24	27 45	1054.54
5 45	1182.28	28 15	1049.76
6 15	1181.22	28 45	1044.90
6 45	1180.08	29 15	1039.97
7 15	1178.85	29 45	1034.95
7 45	1177.53	30 15	1029.85
8 15	1176.13	30 45	1024.68
8 45	1174.63	31 15	1019.43
9 15	1173.06	31 45	1014.10
9 45	1171.39	32 15	1008.69
10 15	1169.63	32 45	1003.20
10 45	1167.80	33 15	997.64
11 15	1165.86	33 45	992.00
11 45	1163.85	34 15	986.29
12 15	1161.75	34 45	980.50
12 45	1159.56	35 15	974.64
13 15	1157.29	35 45	968.70
13 45	1154.93	36 15	962.68
14 15	1152.48	36 45	956.60
14 45	1149.95	37 15	950.43
15 15	1147.33	37 45	944.21
15 45	1144.63	38 15	937.88
16 15	1141.84	38 45	931.51
16 45	1138.96	39 15	925.06
17 15	1136.00	39 45	918.53
17 45	1132.96	40 15	911.94
18 15	1129.83	40 45	905.27
18 45	1126.62	41 15	898.54
19 15	1123.32	41 45	891.73
19 45	1119.93	42 15	884.85
20 15	1116.47	42 45	877.91
20 45	1112.92	43 15	870.90
21 15	1109.28	43 45	863.82
21 45	1105.57	44 15	856.67
22 15	1101.77	44 45	849.46
22 45	1097.88	45 15	842.18

TABLE XIII.—*Areas of quadrilaterals of Earth's surface of 30′ extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′		° ′	
45 45	834.83	67 45	455.13
46 15	827.42	68 15	445.45
46 45	819.94	68 45	435.72
47 15	812.40	69 15	425.96
47 45	804.79	69 45	416.16
48 15	797.13	70 15	406.34
48 45	789.39	70 45	396.47
49 15	781.60	71 15	386.58
49 45	773.74	71 45	376.65
50 15	765.83	72 15	366.70
50 45	757.85	72 45	356.71
51 15	749.82	73 15	346.69
51 45	741.72	73 45	336.65
52 15	733.57	74 15	326.58
52 45	725.36	74 45	316.48
53 15	717.08	75 15	306.36
53 45	708.76	75 45	296.21
54 15	700.38	76 15	286.04
54 45	691.94	76 45	275.84
55 15	683.44	77 15	265.62
55 45	674.89	77 45	255.38
56 15	666.29	78 15	245.12
56 45	657.64	78 45	234.83
57 15	648.93	79 15	224.53
57 45	640.17	79 45	214.21
58 15	631.36	80 15	203.88
58 45	622.49	80 45	193.52
59 15	613.59	81 15	183.15
59 45	604.62	81 45	172.77
60 15	595.62	82 15	162.37
60 45	586.56	82 45	151.95
61 15	577.45	83 15	141.53
61 45	568.30	83 45	131.09
62 15	559.11	84 15	120.64
62 45	549.86	84 45	110.18
63 15	540.58	85 15	99.72
63 45	531.25	85 45	89.25
64 15	521.88	86 15	78.76
64 45	512.46	86 45	68.27
65 15	503.01	87 15	57.78
65 45	493.51	87 45	47.28
66 15	483.97	88 15	36.78
66 45	474.40	88 45	26.27
67 15	464.78	89 15	15.76
67 45	455.13	89 45	5.26

TABLE XIII.—*Areas of quadrilaterals of Earth's surface of 30′ extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′		° ′	
0 30	1188.05	23 00	1095.91
1 00	1187.92	23 30	1091.90
1 30	1187.70	24 00	1087.81
2 00	1187.39	24 30	1083.64
2 30	1186.99	25 00	1079.39
3 00	1186.51	25 30	1075.05
3 30	1185.95	26 00	1070.64
4 00	1185.28	26 30	1066.14
4 30	1184.53	27 00	1061.56
5 00	1183.70	27 30	1056.90
5 30	1182.77	28 00	1052.16
6 00	1181.76	28 30	1047.34
6 30	1180.66	29 00	1042.44
7 00	1179.48	29 30	1037.47
7 30	1178.20	30 00	1032.41
8 00	1176.84	30 30	1027.27
8 30	1175.39	31 00	1022.06
9 00	1173.86	31 30	1016.77
9 30	1172.23	32 00	1011.40
10 00	1170.52	32 30	1005.96
10 30	1168.73	33 00	1000.43
11 00	1166.84	33 30	994.83
11 30	1164.86	34 00	989.16
12 00	1162.81	34 30	983.41
12 30	1160.67	35 00	977.58
13 00	1158.44	35 30	971.68
13 30	1156.12	36 00	965.70
14 00	1153.72	36 30	959.65
14 30	1151.23	37 00	953.52
15 00	1148.65	37 30	947.32
15 00	1145.99	38 00	941.05
16 00	1143.25	38 30	934.71
16 30	1140.41	39 00	928.29
17 00	1137.50	39 30	921.80
17 30	1134.49	40 00	915.25
18 00	1131.41	40 30	908.61
18 30	1128.24	41 00	901.91
19 00	1124.98	41 30	895.14
19 30	1121.64	42 00	888.30
20 00	1118.21	42 30	881.39
20 30	1114.71	43 00	874.41
21 00	1111.11	43 30	867.37
21 30	1107.44	44 00	860.25
22 00	1103.68	44 30	853.07
22 30	1099.84	45 00	845.82

TABLE XIII.—*Areas of quadrilaterals of Earth's surface of 30′ extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′		° ′	
45 30	838.51	68 00	450.29
46 00	831.13	68 30	440.59
46 30	823.68	69 00	430.84
47 00	816.18	69 30	421.06
47 30	808.60	70 00	411.25
48 00	800.97	70 30	401.41
48 30	793.27	71 00	391.53
49 00	785.50	71 30	381.62
49 30	777.68	72 00	371.68
50 00	769.79	72 30	361.71
50 30	761.85	73 00	351.71
51 00	753.84	73 30	341.68
51 30	745.78	74 00	331.62
52 00	737.65	74 30	321.53
52 30	729.47	75 00	311.42
53 00	721.23	75 30	301.28
53 30	712.93	76 00	291.12
54 00	704.57	76 30	280.94
54 30	696.16	77 00	270.73
55 00	687.70	77 30	260.50
55 30	679.17	78 00	250.25
56 00	670.60	78 30	239.98
56 30	661.97	79 00	229.68
57 00	653.29	79 30	219.37
57 30	644.55	80 00	209.05
58 00	635.77	80 30	198.70
58 30	626.93	81 00	188.34
59 00	618.05	81 30	177.96
59 30	609.11	82 00	167.57
60 00	600.13	82 30	157.16
60 30	591.09	83 00	146.74
61 00	582.01	83 30	136.31
61 30	572.88	84 00	125.87
62 00	563.71	84 30	115.42
62 30	554.49	85 00	104.95
63 00	545.23	85 30	94.48
63 30	535.92	86 00	84.01
64 00	526.57	86 30	73.52
64 30	517.17	87 00	63.03
65 00	507.74	87 30	52.53
65 30	498.26	88 00	42.03
66 00	488.75	88 30	31.53
66 30	479.19	89 00	21.02
67 00	469.60	89 30	10.51
67 30	459.96	90 00	00.00

TABLE XIV.—*Areas of quadrilaterals of Earth's surface of* 15′ *extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′ ″		° ′ ″	
0 07 30	297.02	5 45 00	295.57
0 15 00	297.02	5 52 30	295.51
0 22 30	297.02	6 00 00	295.44
0 30 00	297.01	6 07 30	295.37
0 37 30	297.01	6 15 00	295.31
0 45 00	297.00	6 22 30	295.24
0 52 30	296.99	6 30 00	295.17
1 00 00	296.98	6 37 30	295.09
1 07 30	296.97	6 45 00	295.02
1 15 00	296.96	6 52 30	294.95
1 22 30	296.94	7 00 00	294.87
1 30 00	296.93	7 07 30	294.79
1 37 30	296.91	7 15 00	294.71
1 45 00	296.89	7 22 30	294.63
1 52 30	296.87	7 30 00	294.55
2 00 00	296.85	7 37 30	294.47
2 07 30	296.82	7 45 00	294.39
2 15 00	296.80	7 52 30	294.30
2 22 30	296.77	8 00 00	294.21
2 30 00	296.75	8 07 30	294.12
2 37 30	296.72	8 15 00	294.03
2 45 00	296.69	8 22 30	293.94
2 52 30	296.66	8 30 00	293.85
3 00 00	296.63	8 37 30	293.75
3 07 30	296.60	8 45 00	293.66
3 15 00	296.56	8 52 30	293.56
3 22 30	296.53	9 00 00	293.47
3 30 00	296.49	9 07 30	293.37
3 37 30	296.45	9 15 00	293.27
3 45 00	296.41	9 22 30	293.16
3 52 30	296.36	9 30 00	293.06
4 00 00	296.32	9 37 30	292.95
4 07 30	296.28	9 45 00	292.85
4 15 00	296.23	9 52 30	292.74
4 22 30	296.18	10 00 00	292.63
4 30 00	296.13	10 07 30	292.52
4 37 30	296.08	10 15 00	292.41
4 45 00	296.03	10 22 30	292.30
4 52 30	295.98	10 30 00	292.19
5 00 00	295.93	10 37 30	292.07
5 07 30	295.87	10 45 00	291.95
5 15 00	295.81	10 52 30	291.83
5 22 30	295.75	11 00 00	291.71
5 30 00	295.69	11 07 30	291.59
5 37 30	295.63	11 15 00	291.47

TABLE XIV.—*Areas of quadrilaterals of earth's surface of 15′ extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′ ″		° ′ ″	
11 22 30	291.34	17 00 00	284.38
11 30 00	291.22	17 07 30	284.19
11 37 30	291.09	17 15 00	284.00
11 45 00	290.96	17 22 30	283.81
11 52 30	290.83	17 30 00	283.62
12 00 00	290.70	17 37 30	283.43
12 70 30	290.57	17 45 00	283.24
12 15 00	290.44	17 52 30	283.05
12 22 30	290.30	18 00 00	282.86
12 30 00	290.17	18 07 30	282.66
12 37 30	290.03	18 15 00	282.46
12 45 00	289.89	18 22 30	282.26
12 52 30	289.75	18 30 00	282.06
13 00 00	289.61	18 37 30	281.86
13 07 30	289.47	18 45 00	281.66
13 15 00	289.33	18 52 30	281.45
13 22 30	289.18	19 00 00	281.25
13 30 00	289.03	19 07 30	281.04
13 37 30	288.88	19 15 00	280.83
13 45 00	288.73	19 22 30	280.62
13 52 30	288.58	19 30 00	280.41
14 00 00	288.43	19 37 30	280.20
14 07 30	288.28	19 45 00	279.99
14 15 00	288.12	19 52 30	279.77
14 22 30	287.96	20 00 00	279.55
14 30 00	287.81	20 07 30	279.34
14 37 30	287.65	20 15 00	279.12
14 45 00	287.49	20 22 30	278.90
14 52 30	287.33	20 30 00	278.68
15 00 00	287.17	20 37 30	278.46
15 07 30	287.00	20 45 00	278.23
15 15 00	286.83	20 52 30	278.00
15 22 30	286.67	21 00 00	277.78
15 30 00	286.50	21 07 30	277.55
15 37 30	286.33	21 15 00	277.32
15 45 00	286.16	21 22 30	277.09
15 52 30	285.99	21 30 00	276.86
16 00 00	285.82	21 37 30	276.63
16 07 30	285.64	21 45 00	276.39
16 15 00	285.46	21 52 30	276.16
16 22 30	285.28	22 00 00	275.92
16 30 00	285.10	22 07 30	275.68
16 37 30	284.92	22 15 00	275.44
16 45 00	284.74	22 22 30	275.20
16 52 30	284.56	22 30 00	274.96

TABLE XIV.—*Areas of quadrilaterals of Earth's surface of 15′ extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′ ″		° ′ ″	
22 37 30	274.72	28 15 00	262.44
22 45 00	274.47	28 22 30	262.14
22 52 30	274.22	28 30 00	261.84
23 00 00	273.98	28 37 30	261.53
23 07 30	273.73	28 45 00	261.23
23 15 00	273.48	28 52 30	260.92
23 22 30	273.23	29 00 00	260.61
23 30 00	272.98	29 07 30	260.30
23 37 30	272.72	29 15 00	259.99
23 45 00	272.47	29 22 30	259.68
23 52 30	272.21	29 30 00	259.37
24 00 00	271.95	29 37 30	259.05
24 07 30	271.69	29 45 00	258.74
24 15 00	271.44	29 52 30	258.42
24 22 30	271.17	30 00 00	258.10
24 30 00	270.91	30 07 30	257.78
24 37 30	270.65	30 15 00	257.46
24 45 00	270.38	30 22 30	257.14
24 52 30	270.11	30 30 00	256.82
25 00 00	269.85	30 37 30	256.49
25 07 30	269.58	30 45 00	256.17
25 15 00	269.31	30 52 30	255.84
25 22 30	269.04	31 00 00	255.52
25 30 00	268.76	31 07 30	255.19
25 37 30	268.49	31 15 00	254.86
25 45 00	268.21	31 22 30	254.53
25 52 30	267.94	31 30 00	254.19
26 00 00	267.66	31 37 30	253.86
26 07 30	267.38	31 45 00	253.53
26 15 00	267.10	31 52 30	253.19
26 22 30	266.82	32 00 00	252.85
26 30 00	266.54	32 07 30	252.51
26 37 30	266.25	32 15 00	252.17
26 45 00	265.97	32 22 30	251.83
26 52 30	265.68	32 30 00	251.49
27 00 00	265.39	32 37 30	251.15
27 07 30	265.10	32 45 00	250.80
27 15 00	264.81	32 52 30	250.45
27 22 30	264.52	33 00 00	250.11
27 30 00	264.23	33 07 30	249.76
27 37 30	263.93	33 15 00	249.41
27 45 00	263.64	33 22 30	249.06
27 52 30	263.34	33 30 00	248.71
28 00 00	263.04	33 37 30	248.36
28 07 30	262.74	33 45 00	248.00

TABLE XIV.—*Areas of quadrilaterals of Earth's surface of 15′ extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.			Area in square miles.	Middle latitude of quadrilateral.			Area in square miles.
°	′	″		°	′	″	
33	52	30	247.65	39	30	00	230.45
34	00	00	247.29	39	37	30	230.04
34	07	30	246.93	39	45	00	229.63
34	15	00	246.57	39	52	30	229.22
34	22	30	246.21	40	00	00	228.81
34	30	00	245.85	40	07	30	228.40
34	37	30	245.49	40	15	00	227.99
34	45	00	245.13	40	22	30	227.57
34	52	30	244.76	40	30	00	227.15
35	00	00	244.40	40	37	30	226.73
35	07	30	244.03	40	45	00	226.32
35	15	00	243.66	40	52	30	225.90
35	22	30	243.29	41	00	00	225.48
35	30	00	242.92	41	07	30	225.06
35	37	30	242.55	41	15	00	224.64
35	45	00	242.18	41	22	30	224.21
35	52	30	241.80	41	30	00	223.79
36	00	00	241.43	41	37	30	223.36
36	07	30	241.05	41	45	00	222.93
36	15	00	240.67	41	52	30	222.50
36	22	30	240.29	42	00	00	222.08
36	30	00	239.91	42	07	30	221.65
36	37	30	239.53	42	15	00	221.21
36	45	00	239.15	42	22	30	220.78
36	52	30	238.77	42	30	00	220.35
37	00	00	238.38	42	37	30	219.91
37	07	30	237.99	42	45	00	219.48
37	15	00	237.61	42	52	30	219.04
37	22	30	237.22	43	00	00	218.60
37	30	00	236.83	43	07	30	218.16
37	37	30	236.44	43	15	00	217.73
37	45	00	236.05	43	22	30	217.28
37	52	30	235.66	43	30	00	216.84
38	00	00	235.26	43	37	30	216.40
38	07	30	234.87	43	45	00	215.96
38	15	00	234.47	43	52	30	215.51
38	22	30	234.07	44	00	00	215.06
38	30	00	233.68	44	07	30	214.61
38	37	30	233.28	44	15	00	214.17
38	45	00	232.88	44	22	30	213.72
38	52	30	232.48	44	30	00	213.27
39	00	00	232.07	44	37	30	212.82
39	07	30	231.67	44	45	00	212.37
39	15	00	231.27	44	52	30	211.91
39	22	30	230.86	45	00	00	211.46

TABLE XIV.—*Areas of quadrilaterals of Earth's surface of 15′ extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′ ″		° ′ ″	
45 07 30	211.00	50 45 00	189.46
45 15 00	210.55	50 52 30	188.96
45 22 30	210.09	51 00 00	188.46
45 30 00	209.63	51 07 30	187.96
45 37 30	209.17	51 15 00	187.46
45 45 00	208.71	51 22 30	186.95
45 52 30	208.25	51 30 00	186.45
46 00 00	207.78	51 37 30	185.94
46 07 30	207.32	51 45 00	185.43
46 15 00	206.86	51 52 30	184.92
46 22 30	206.39	52 00 00	184.41
46 30 00	205.92	52 07 30	183.90
46 37 30	205.45	52 15 00	183.39
46 45 00	204.99	52 22 30	182.88
46 52 30	204 52	52 30 00	182.37
47 00 00	204.05	52 37 30	181.85
47 07 30	203.57	52 45 00	181.34
47 15 00	203.10	52 52 30	180.82
47 22 30	202.63	53 00 00	180.31
47 30 00	202.15	53 07 30	179.79
47 37 30	201.67	53 15 00	179.27
47 45 00	201.20	53 22 30	178.75
47 52 30	200.72	53 30 00	178.23
48 00 00	200.24	53 37 30	177.71
48 07 30	199.76	53 45 00	177.19
48 15 00	199.28	53 52 30	176.67
48 22 30	198.80	54 00 00	176.14
48 30 00	198.32	54 07 30	175.62
48 37 30	197.83	54 15 00	175.10
48 45 00	197.35	54 22 30	174.57
48 52 30	196.86	54 30 00	174.04
49 00 00	196.38	54 37 30	173.51
49 07 30	195.89	54 45 00	172.99
49 15 00	195.40	54 52 30	172.46
49 22 30	194.91	55 00 00	171.93
49 30 00	194.42	55 07 30	171.39
49 37 30	193.93	55 15 00	170.86
49 45 00	193.44	55 22 30	170.33
49 52 30	192.94	55 30 00	169.79
50 00 00	192.45	55 37 30	169.26
50 07 30	191.95	55 45 00	168.72
50 15 00	191.46	55 52 30	168.19
50 22 30	190.96	56 00 00	167.65
50 30 00	190.46	56 07 30	167.11
50 37 30	189.96	56 15 00	166.57

TABLE XIV.—*Areas of quadrilaterals of Earth's surface of 15′ extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.			Area in square miles.	Middle latitude of quadrilateral.			Area in square miles.
°	′	″		°	′	″	
56	22	30	166.03	62	00	00	140.93
56	30	00	165.49	62	07	30	140.35
56	37	30	164.95	62	15	00	139.78
56	45	00	164.41	62	22	30	139.20
56	52	30	163.87	62	30	00	138.62
57	00	00	163.32	62	37	30	138.04
57	07	30	162.78	62	45	00	137.47
57	15	00	162.23	62	52	30	136.89
57	22	30	161.68	63	00	00	136.31
57	30	00	161.14	63	07	30	135.73
57	37	30	160.59	63	15	00	135.15
57	45	00	160.04	63	22	30	134.56
57	52	30	159.49	63	30	00	133.98
58	00	00	158.94	63	37	30	133.40
58	07	30	158.39	63	45	00	132.81
58	15	00	157.84	63	52	30	132.23
58	22	30	157.29	64	00	00	131.64
58	30	00	156.73	64	07	30	131.06
58	37	30	156.18	64	15	00	130.47
58	45	00	155.62	64	22	30	129.88
58	52	30	155.07	64	30	00	129.29
59	00	00	154.51	64	37	30	128.70
59	07	30	153.96	64	45	00	128.12
59	15	00	153.40	64	52	30	127.53
59	22	30	152.84	65	00	00	126.94
59	30	00	152.28	65	07	30	126.34
59	37	30	151.72	65	15	00	125.75
59	45	00	151.16	65	22	30	125.16
59	52	30	150.60	65	30	00	124.57
60	00	00	150.03	65	37	30	123.97
60	07	30	149.47	65	45	00	123.38
60	15	00	148.91	65	52	30	122.78
60	22	30	148.34	66	00	00	122.19
60	30	00	147.77	66	07	30	121.59
60	37	30	147.21	66	15	00	120.99
60	45	00	146.64	66	22	30	120.40
60	52	30	146.07	66	30	00	119.80
61	00	00	145.50	66	37	30	119.20
61	07	30	144.93	66	45	00	118.60
61	15	00	144.36	66	52	30	118.00
61	22	30	143.79	67	00	00	117.40
61	30	00	143.22	67	07	30	116.80
61	37	30	142.65	67	15	00	116.20
61	45	00	142.08	67	22	30	115.59
61	52	30	141.50	67	30	00	114.99

TABLE XIV.—*Areas of quadrilaterals of Earth's surface of 15′ extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′ ″		° ′ ″	
67 37 30	114.39	73 15 00	86.67
67 45 00	113.78	73 22 30	86.05
67 52 30	113.18	73 30 00	85.42
68 00 00	112.57	73 37 30	84.79
68 07 30	111.97	73 45 00	84.16
68 15 00	111.36	73 52 30	83.53
68 22 30	110.76	74 00 00	82.91
68 30 00	110.15	74 07 30	82.28
68 37 30	109.54	74 15 00	81.65
68 45 00	108.93	74 22 30	81.01
68 52 30	108.32	74 30 00	80.38
69 00 00	107.71	74 37 30	79.75
69 07 30	107.10	74 45 00	79.12
69 15 00	106.49	74 52 30	78.49
69 22 30	105.88	75 00 00	77.86
69 30 00	105.27	75 07 30	77.22
69 37 30	104.65	75 15 00	76.59
69 45 00	104.04	75 22 30	75.95
69 52 30	103.43	75 30 00	75.32
70 00 00	102.81	75 37 30	74.69
70 07 30	102.20	75 45 00	74.05
70 15 00	101.59	75 52 30	73.42
70 22 30	100.97	76 00 00	72.78
70 30 00	100.35	76 07 30	72.14
70 37 30	99.74	76 15 00	71.51
70 45 00	99.12	76 22 30	70.87
70 52 30	98.50	76 30 00	70.24
71 00 00	97.88	76 37 30	69.60
71 07 30	97.26	76 45 00	68.96
71 15 00	96.65	76 52 30	68.32
71 22 30	96.03	77 00 00	67.68
71 30 00	95.41	77 07 30	67.04
71 37 30	94.78	77 15 00	66.41
71 45 00	94.16	77 22 30	65.77
71 52 30	93.54	77 30 00	65.13
72 00 00	92.92	77 37 30	64.49
72 07 30	92.30	77 45 00	63.85
72 15 00	91.68	77 52 30	63.20
72 22 30	91.05	78 00 00	62.56
72 30 00	90.43	78 07 30	61.92
72 37 30	89.80	78 15 00	61.28
72 45 00	89.18	78 22 30	60.64
72 52 30	88.55	78 30 00	60.00
73 00 00	87.93	78 37 30	59.35
73 07 30	87.30	78 45 00	58.71

TABLE XIV.—*Areas of quadrilaterals of Earth's surface of* 15′ *extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.			Area in square miles.	Middle latitude of quadrilateral.			Area in square miles.
°	′	″		°	′	″	
78	52	30	58.06	84	30	00	28.86
79	00	00	57.42	84	37	30	28.20
79	07	30	56.78	84	45	00	27.54
79	15	00	56.13	84	52	30	26.89
79	22	30	55.49	85	00	00	26.24
79	30	00	54.84	85	07	30	25.58
79	37	30	54.20	85	15	00	24.93
79	45	00	53.55	85	22	30	24.27
79	52	30	52.91	85	30	00	23.62
80	00	00	52.26	85	37	30	22.97
80	07	30	51.62	85	45	00	22.31
80	15	00	50.97	85	52	30	21.66
80	22	30	50.32	86	00	00	21.00
80	30	00	49.68	86	07	30	20.35
80	37	30	49.03	86	15	00	19.69
80	45	00	48.38	86	22	30	19.04
80	52	30	47.73	86	30	00	18.38
81	00	00	47.08	86	37	30	17.72
81	07	30	46.44	86	45	00	17.07
81	15	00	45.79	86	52	30	16.41
81	22	30	45.14	87	00	00	15.76
81	30	00	44.49	87	07	30	15.10
81	37	30	43.84	87	15	00	14.44
81	45	00	43.19	87	22	30	13.79
81	52	30	42.54	87	30	00	13.13
82	00	00	41.89	87	37	30	12.48
82	07	30	41.24	87	45	00	11.82
82	15	00	40.59	87	52	30	11.16
82	22	30	39.94	88	00	00	10.51
82	30	00	39.29	88	07	30	9.85
82	37	30	38.64	88	15	00	9.20
82	45	00	37.99	88	22	30	8.54
82	52	30	37.34	88	30	00	7.88
83	00	00	36.69	88	37	30	7.22
83	07	30	36.03	88	45	00	6.57
83	15	00	35.38	88	52	30	5.91
83	22	30	34.73	89	00	00	5.26
83	30	00	34.08	89	07	30	4.60
83	37	30	33.42	89	15	00	3.94
83	45	00	32.77	89	22	30	3.28
83	52	30	32.12	89	30	00	2.63
84	00	00	31.47	89	37	30	1.97
84	07	30	30.81	89	45	00	1.31
84	15	00	30.16	89	52	30	0.66
84	22	30	29.51				

TABLE XV.—*Areas of quadrilaterals of Earth's surface of* 10′ *extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′		° ′	
0 05	132.01	7 35	130.88
0 15	132.01	7 45	130.84
0 25	132.01	7 55	130.79
0 35	132.00	8 05	130.73
0 45	132.00	8 15	130.68
0 55	131.99	8 25	130.63
1 05	131.99	8 35	130.57
1 15	131.98	8 45	130.51
1 25	131.97	8 55	130.46
1 35	131.96	9 05	130.40
1 45	131.95	9 15	130.34
1 55	131.94	9 25	130.28
2 05	131.93	9 35	130.22
2 15	131.91	9 45	130.15
2 25	131.90	9 55	130.09
2 35	131.88	10 05	130.02
2 45	131.86	10 15	129.96
2 55	131.84	10 25	129.89
3 05	131.82	10 35	129.82
3 15	131.80	10 45	129.76
3 25	131.78	10 55	129.68
3 35	131.76	11 05	129.61
3 45	131.74	11 15	129.54
3 55	131.71	11 25	129.47
4 05	131.68	11 35	129.39
4 15	131.66	11 45	129.32
4 25	131.63	11 55	129.24
4 35	131.60	12 05	129.16
4 45	131.57	12 15	129.08
4 55	131.54	12 25	129.00
5 05	131.50	12 35	128.92
5 15	131.47	12 45	128.84
5 25	131.44	12 55	128.76
5 35	131.40	13 05	128.67
5 45	131.36	13 15	128.59
5 55	131.33	13 25	128.50
6 05	131.29	13 35	128.41
6 15	131.25	13 45	128.33
6 25	131.21	13 55	128.24
6 35	131.16	14 05	128.14
6 45	131.12	14 15	128.05
6 55	131.07	14 25	127.96
7 05	131.03	14 35	127.87
7 15	130.98	14 45	127.77
7 25	130.93	14 55	127.67

TABLE XV.—*Areas of quadrilaterals of Earth's surface of 10′ extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′		° ′	
15 05	127.58	22 35	122.13
15 15	127.48	22 45	121.99
15 25	127.38	22 55	121.84
15 35	127.28	23 05	121.69
15 45	127.18	23 15	121.55
15 55	127.08	23 25	121.40
16 05	126.98	23 35	121.25
16 15	126.87	23 45	121.10
16 25	126.77	23 55	120.94
16 35	126.66	24 05	120.79
16 45	126.55	24 15	120.64
16 55	126.44	24 25	120.48
17 05	126.33	24 35	120.33
17 15	126.22	24 45	120.17
17 25	126.11	24 55	120.01
17 35	126.00	25 05	119.85
17 45	125.88	25 15	119.69
17 55	125.77	25 25	119.53
18 05	125.65	25 35	119.37
18 15	125.54	25 45	119.21
18 25	125.42	25 55	119.04
18 35	125.30	26 05	118.87
18 45	125.18	26 15	118.71
18 55	125.06	26 25	118.54
19 05	124.94	26 35	118.37
19 15	124.81	26 45	118.21
19 25	124.69	26 55	118.04
19 35	124.56	27 05	117.87
19 45	124.44	27 15	117.69
19 55	124.31	27 25	117.52
20 05	124.18	27 35	117.35
20 15	124.05	27 45	117.17
20 25	123.92	27 55	116.99
20 35	123.79	28 05	116.82
20 45	123.66	28 15	116.64
20 55	123.52	28 25	116.46
21 05	123.39	28 35	116.28
21 15	123.25	28 45	116.10
21 25	123.12	28 55	115.92
21 35	122.98	29 05	115.73
21 45	122.84	29 15	115.55
21 55	122.70	29 25	115.37
22 05	122.56	29 35	115.18
22 15	122.42	29 45	114.99
22 25	122.28	29 55	114.81

TABLE XV.—*Areas of quadrilaterals of Earth's surface of 10′ extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′		° ′	
30 05	114.62	37 35	105.14
30 15	114.43	37 45	104.91
30 25	114.24	37 55	104.68
30 35	114.04	38 05	104.44
30 45	113.85	38 15	104.21
30 55	113.66	38 25	103.97
31 05	113.47	38 35	103.74
31 15	113.27	38 45	103.50
31 25	113.07	38 55	103.26
31 35	112.88	39 05	103.02
31 45	112.68	39 15	102.78
31 55	112.48	39 25	102.54
32 05	112.28	39 35	102.30
32 15	112.08	39 45	102.06
32 25	111.87	39 55	101.82
32 35	111.67	40 05	101.57
32 45	111.47	40 15	101.33
32 55	111.26	40 25	101.08
33 05	111.06	40 35	100.83
33 15	110.85	40 45	100.59
33 25	110.64	40 55	100.34
33 35	110.43	41 05	100.09
33 45	110.22	41 15	99.84
33 55	110.01	41 25	99.59
34 05	109.80	41 35	99.33
34 15	109.59	41 45	99.08
34 25	109.37	41 55	98.83
34 35	109.16	42 05	98.57
24 45	108.94	42 15	98.32
34 55	108.73	42 25	98.06
35 05	108.51	42 35	97.80
35 15	108.29	42 45	97.55
35 25	108.07	42 55	97.29
35 35	107.85	43 05	97.03
35 45	107.63	43 15	96.77
35 55	107.41	43 25	96.50
36 05	107.19	43 35	96.24
36 15	106.96	43 45	95.98
36 25	106.74	43 55	95.71
36 35	106.51	44 05	95.45
36 45	106.29	44 15	95.19
36 55	106.06	44 25	94.92
37 05	105.83	44 35	94.65
37 15	105.60	44 45	94.38
37 25	105.37	44 55	94.11

TABLE XV.—*Areas of quadrilaterals of Earth's surface of 10′ extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′		° ′	
45 05	93.84	52 35	80.90
45 15	93.58	52 45	80.60
45 25	93.30	52 55	80.29
45 35	93.03	53 05	79.98
45 45	92.76	53 15	79.68
45 55	92.48	53 25	79.37
46 05	92.21	53 35	79.06
46 15	91.94	53 45	78.75
46 25	91.66	53 55	78.44
46 35	91.38	54 05	78.13
46 45	91.10	54 15	77.82
46 55	90.82	54 25	77.51
47 05	90.55	54 35	77.19
47 15	90.27	54 45	76.88
47 25	89.99	54 55	76.57
47 35	89.70	55 05	76.25
47 45	89.42	55 15	75.94
47 55	89.14	55 25	75.62
48 05	88.85	55 35	75.30
48 15	88.57	55 45	74.99
48 25	88.28	55 55	74.67
48 35	88.00	56 05	74.35
48 45	87.71	56 15	74.03
48 55	87.42	56 25	73.71
49 05	87.13	56 35	73.39
49 15	86.84	56 45	73.07
49 25	86.55	56 55	72.75
49 35	86.26	57 05	72.43
49 45	85.97	57 15	72.10
49 55	85.68	57 25	71.78
50 05	85.39	57 35	71.46
50 15	85.09	57 45	71.13
50 25	84.80	57 55	70.80
50 35	84.50	58 05	70.48
50 45	84.21	58 15	70.15
50 55	83.91	58 25	69.82
51 05	83.61	58 35	69.49
51 15	83.31	58 45	69.17
51 25	83.01	58 55	68.84
51 35	82.71	59 05	68.51
51 45	82.41	59 15	68.18
51 55	82.11	59 25	67.84
52 05	81.81	59 35	67.51
52 15	81.51	59 45	67.18
52 25	81.20	59 55	66.85

TABLE XV.—*Areas of quadrilaterals of Earth's surface of 10′ extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′		° ′	
60 05	66.51	67 35	50.93
60 15	66.18	67 45	50.57
60 25	65.84	67 55	50.21
60 35	65.51	68 05	49.85
60 45	65.17	68 15	49.49
60 55	64.84	68 25	49.13
61 05	64.50	68 35	48.77
61 15	64.16	68 45	48.41
61 25	63.82	68 55	48.05
61 35	63.48	69 05	47.69
61 45	63.14	69 15	47.33
61 55	62.80	69 25	46.97
62 05	62.46	69 35	46.60
62 15	62.12	69 45	46.24
62 25	61.78	69 55	45.88
62 35	61.44	70 05	45.51
62 45	61.10	70 15	45.15
62 55	60.75	70 25	44.78
63 05	60.41	70 35	44.42
63 15	60.06	70 45	44.05
63 25	59.72	70 55	43.69
63 35	59.37	71 05	43.32
63 45	59.03	71 15	42.95
63 55	58.68	71 25	42.58
64 05	58.33	71 35	42.22
64 15	57.99	71 45	41.85
64 25	57.64	71 55	41.48
64 35	57.29	72 05	41.11
64 45	56.94	72 15	40.74
64 55	56.59	72 25	40.37
65 05	56.24	72 35	40.00
65 15	55.89	72 45	39.63
65 25	55.54	72 55	39.26
65 35	55.19	73 05	38.89
65 45	54.83	73 15	38.52
65 55	54.48	73 25	38.15
66 05	54.13	73 35	37.78
66 15	53.78	73 45	37.41
66 25	53.42	73 55	37.03
66 35	53.06	74 05	36.66
66 45	52.71	74 15	36.29
66 55	52.35	74 25	35.91
67 05	52.00	74 35	35.54
67 15	51.64	74 45	35.17
67 25	51.28	74 55	34.79

TABLE XV.—*Areas of quadrilaterals of Earth's surface of 10′ extent in latitude and longitude.*

[Derivation of table explained in section (6); use of table explained on page 23.]

Middle latitude of quadrilateral.	Area in square miles.	Middle latitude of quadrilateral.	Area in square miles.
° ′		° ′	
75 05	34.42	82 35	17.27
75 15	34.04	82 45	16.88
75 25	33.66	82 55	16.50
75 35	33.29	83 05	16.11
75 45	32.91	83 15	15.73
75 55	32.53	83 25	15.34
76 05	32.16	83 35	14.95
76 15	31.78	83 45	14.57
76 25	31.40	83 55	14.18
76 35	31.03	84 05	13.79
76 45	30.65	84 15	13.40
76 55	30.27	84 25	13.02
77 05	29.89	84 35	12.63
77 15	29.51	84 45	12.24
77 25	29.13	84 55	11.86
77 35	28.76	85 05	11.47
77 45	28.37	85 15	11.08
77 55	27.99	85 25	10.69
78 05	27.62	85 35	10.30
78 15	27.24	85 45	9.92
78 25	26.85	85 55	9.53
78 35	26.47	86 05	9.14
78 45	26.09	86 15	8.75
78 55	25.71	86 25	8.36
79 05	25.33	86 35	7.97
79 15	24.95	86 45	7.59
79 25	24.57	86 55	7.20
79 35	24.18	87 05	6.81
79 45	23.80	87 15	6.42
79 55	23.42	87 25	6.03
80 05	23.04	87 35	5.64
80 15	22.65	87 45	5.25
80 25	22.27	87 55	4.86
80 35	21.89	88 05	4.47
80 45	21.50	88 15	4.09
80 55	21.12	88 25	3.70
81 05	20.73	88 35	3.31
81 15	20.35	88 45	2.92
81 25	19.97	88 55	2.53
81 35	19.58	89 05	2.14
81 45	19.20	89 15	1.75
81 55	18.81	89 25	1.36
82 05	18.43	89 35	0.97
82 15	18.04	89 45	0.58
82 25	17.65	89 55	0.19

TABLE XVI.—*Actual intervals corresponding to* 0.01 *inch on maps of various scales.*

[Derivation of table explained in section (13).]

Scale.	Intervals in feet.
$\frac{1}{253440}$ = 0.253 inches to 1 mile	208.333
$\frac{1}{126720}$ = 0.500 inches to 1 mile	105.600
$\frac{1}{126000}$ = 0.507 inches to 1 mile	104.167
$\frac{1}{63360}$ = 1.000 inches to 1 mile	52.800
$\frac{1}{62500}$ = 1.014 inches to 1 mile	52.083
$\frac{1}{31680}$ = 2.000 inches to 1 mile	26.400
$\frac{1}{30000}$ = 2.112 inches to 1 mile	25.000

Miscellaneous Constants.

		log.
Base of Naperian logarithms	$\varepsilon = 2.7182818$	0.4342945
Log ε = modulus of common logarithms	$\mu = 0.4342945$	9.6377843 — 10
Radius in seconds of arc	206264.8	5.3144251
Radius in minutes of arc	3437.7468	3.5362739
Radius in degrees of arc	57.29578	1.7581226
Ratio of circumference to diameter of circle	$\pi = 3.14159265$	0.4971499

Dimensions of the Earth as represented by Clarke's spheroid (of 1866).

Semi axis major ..... feet	$a = 20926062$	7.3206875
Semi axis minor ..... feet	$b = 20855121$	7.3192127
(Eccentricity)^2	$e^2 = 0.00676866$	7.8305030 — 10
Perimeter of meridian ellipse ..... miles	24859.76	
Circumference of equator ..... miles	24901.96	
Area of earth's surface ..... square miles	196940400	

Relations between English and metric units of length. Clarke's values.

No. inches in 1 meter	39.370432	1.5951702
No. feet in 1 meter	3.2808693	0.5159889
No. yards in 1 meter	1.0936231	0.0388677
No. meters in 1 inch	0.0253998	8.4048298 — 10
No. meters in 1 foot	0.3047973	9.4840111 — 10
No. meters in 1 yard	0.9143917	9.9611323 — 10
No. meters in 1 mile	1609.3296	4.2066450