



TRAVERSE TABLES

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FOR
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INTRODUCTION.

IN offering the present Volume to the consideration of his brother Surveyors, the Author would simply remark, that it owes its existence to his own felt want of such a compilation.

Whilst occupied on the Government Survey of Victoria, the inadequacy for practical purposes of the existing published Computations forced itself so strongly upon him, that he resolved, notwithstanding the pressure of professional engagements, to prepare a set of Traverse Tables which should more nearly answer both his own requirements and those of his colleagues—a determination which has resulted in the publication of the ensuing pages.

The DISTINCTIVE FEATURES of these Tables, and the method of their employment, may be briefly summarised as follows:—

I. The Tables are calculated to Single Minutes and to 100 of Distance.

II. The Traverses are given to four places of decimals, so that the Sines and Cosines for a distance of twelve miles can be ascertained correctly to within half an inch.

III. The angles 0 to 45° are given at the top of the page, and 45° to 90° at the foot; the distances 1 to 100 are in the outside columns; and the quantity sought is found at the intersection of the column containing the required angle and the line on which is the required distance.

IV. The whole numbers are given in the two centre columns *only*, and from these the decimal quantities increase towards the edge of the page, the Sines increasing to the right, and the Cosines to the left. When the whole number changes in the line, attention is directed to it by a black diamond; therefore, when a black diamond is found, it is to be understood that it signifies a cipher, and that the whole numbers on the same line must be increased by *one*. The simplicity of this plan has so many advantages, that, in the Author's opinion, it more than counterbalances the commoner one of repeating the whole numbers at the outside of the page as well as in the centre.

V. In the following Table, the whole of the figures required to be written for the finding of Sines and Cosines are shown in a circuit of twelve lines:—

Bearing.	Reduced Bearing.	Distance.	Latitude.	Departure.	Latitude.		Departure.	
					N.	S.	E.	W.
90° 16'	S. 89° 44' E.	9326	43° 28 '12 <u>43° 40</u>	9299° 90 26° 00 <u>9325° 60</u>		43° 40	9325° 90	
63° 27'	N. 63° 27' E.	460			205° 61		411° 49	
16° 28'	N. 16° 28' E.	1022	958° 99 21° 10 <u>980° 09</u>	283° 46 6° 24 <u>289° 70</u>	980° 09		289° 70	
136° 25'	S. 43° 35' E.	1270	969° 25 50° 71 <u>919° 96</u>	827° 29 48° 26 <u>875° 55</u>		919° 96	875° 55	
203° 15'	S. 23° 15' W.	990				909° 60		390° 80
161° 3'	S. 18° 57' E.	1275	1134° 96 70° 94 <u>1205° 90</u>	389° 69 24° 36 <u>414° 05</u>		1205° 90	414° 05	
136° 46'	S. 43° 14' E.	1153	801° 43 38° 61 <u>840° 04</u>	753° 47 36° 30 <u>789° 77</u>		840° 04	789° 77	
174° 43'	S. 5° 17' E.	1180	1095° 33 79° 66 <u>1174° 99</u>	101° 29 7° 37 <u>108° 66</u>		1174° 99	108° 66	
234° 20'	S. 54° 20' W.	1563	874° 60 36° 73 <u>911° 33</u>	1218° 63 51° 18 <u>1269° 81</u>		911° 33		1269° 81
196° 17'	S. 16° 17' W.	881	844° 70 '96 <u>845° 66</u>	246° 74 '28 <u>247° 02</u>		845° 66		247° 02
270° 0'	W.	7708						7708° 00
235° 21'	N. 24° 39' W.	6233	5635° 01 29° 99 <u>5665° 00</u>	2585° 86 13° 76 <u>2599° 62</u>	5665° 00			2599° 62
					<u>6850° 70</u>	<u>6850° 88</u>	<u>12215° 12</u>	<u>12215° 25</u>

The angles sought in the Tables are those under the head "Reduced Bearing."

For the first line, opening the Tables at 89° 44':

the Cosine and Sine for 93 chs. are first found, 43° 28 and 9299° 90
then for 26 lks., '12 26° 00
and these being added up, 43° 40 9325° 90

the results are carried into the S. and E. columns.

In the next line, the book is opened at 63° 27, and for Distance 4° 60 chs. The Cosine and Sine are found at once, and copied into the N. and E. columns.

In the third line, the book is opened at 16° 28', and at a Distance 100:

the Cosine and Sine copied, 958° 99 and 283° 46
then for 22 lks., 21° 10 6° 24
and these being added up, 980° 09 289° 70

the results are carried into the N. and E. columns.

The trifling calculation required is shown in full in the columns "Latitude" and "Departure," that for each line being comprised in *one* page of the book.

VI. The great advantage of these Traverse Tables over Logarithms—both as regards simplicity and economy of labour in calculating—will be seen at a glance from the following comparative Table:—

CALCULATIONS REQUIRED FOR FINDING SINES AND COSINES.		
	By TRAVERSE TABLES.	By LOGARITHMS.
63° 27' — 4600 links.	<p>2056'10 — 4114'91</p> <p><i>One opening of Traverse Tables.</i></p> <p><i>No calculation required.</i></p>	<p style="text-align: right;">5 93</p> <p>4114'91</p> <p style="padding-left: 2em;">63° 27'</p> <p style="padding-left: 2em;">4600</p> <p>2056'10</p> <p style="text-align: right;">3'6143598 9'9516020 3'6627578 9'6502868 3'3130446 42 4</p> <p>(a.) The Logarithm book has to be opened in four different places.</p> <p>(b.) Two separate additions have to be made.</p> <p>(c.) In taking out natural numbers, proportional parts have to be resorted to, in order to find figures of second decimal place.</p> <p>(d.) Besides the calculations, 48 more figures have to be written in doing the work by Logarithms than by Traverse Tables.</p>
26° 29' — 9987 links.	<p>(99 chs.) 8861'13 — 4414'78</p> <p>(87 lks.) 77'87 38'80</p> <hr style="width: 50%; margin-left: 0;"/> <p>8939'00 4453'58</p> <p><i>One opening of Traverse Tables only required.</i></p> <p>In column 26° 29' the Sin. and Cos. for 99 are first found, then in the same column the Sin. and Cos. for 87; these added together give the result.</p>	<p>A calculation similar to that given above is necessitated by Logarithms.</p>

In conclusion, the Author would express a hope that these Tables—compiled in the first instance, as already indicated, for private use—will be found helpful by all engaged in active practice, whether as Surveyors or as Engineers, not only in these Colonies, but in every part of the world where Traverse Tables are employed. No pains have been spared to ensure accuracy—the Tables exhibiting results arrived at by two different methods of computation pursued independently by the Author and assistants; and the utmost care has been bestowed upon the work during its progress through the Press—the Proof-sheets having in every instance been corrected by the writer, notwithstanding the fact that some thousands of miles intervene between himself and the Publishers. Finally, before publication, as a last precaution, the Tables were recomputed a third time, and the whole work was subjected to a rigid and most careful revision, leaving it, as the Author thinks himself justified in believing, absolutely free from error.

R. L. GURDEN,
KERANG, VICTORIA.

TRAVERSE TABLES.

0°	COSINE.										SINE.										0°
	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	
	1	0000	0000	0000	0000	0000	0000	0000	0000	0000	1'0000	*0029	0032	0035	0038	0041	0044	0047	0049	0052	
50	50'	49'	48'	47'	46'	45'	44'	43'	42'	41'	50'	49'	48'	47'	46'	45'	44'	43'	42'	41'	50

89°

SINE.

COSINE.

89°

TRAVERSE TABLES.

Table of Trigonometric Values. Columns include degree markers (0° to 89°) and labels for COSINE and SINE. The table is structured with 18 columns of values and 18 rows of degree markers.

TRAVERSE TABLES.

Table with columns for degrees (1° to 88°), Cosine, and Sine values. The table is organized into two main sections: Cosine (left) and Sine (right), with degrees increasing from 1° to 88°.

TRAVERSE TABLES.

Table with columns for degrees (1° to 88°) and minutes (0' to 31'). It is divided into two main sections: COSINE (left) and SINE (right). Each section contains a grid of numerical values for each minute interval. The cosine values decrease from left to right, while the sine values increase from left to right. The table is symmetric around the 45-degree mark.

TRAVERSE TABLES.

1°	COSINE.										SINE.										1°	
	30'	31'	32'	33'	34'	35'	36'	37'	38'	39'	30'	31'	32'	33'	34'	35'	36'	37'	38'	39'		
	1	9997	9996	9996	9996	9996	9996	9996	9996	9996	9996	0262	0265	0268	0270	0273	0276	0279	0282	0285		0288
100	9657	9650	9642	9634	9626	9618	9610	9602	9594	9585	2617	6468	6491	6517	6546	6577	6610	6645	6682	6720	6759	100

TRAVERSE TABLES.

Table with columns for degree (1° to 88°), COSINE, and SINE values. The table is organized into sections for each degree, with rows for minutes (1 to 60) and columns for seconds (0' to 10'). It includes a grid of numerical values for cosine and sine functions.

TRAVERSE TABLES.

Table with columns for degrees (1° to 88°) and minutes (60' to 10'), and rows for Cosine and Sine values. The table is divided into four quadrants: Cosine (top-left), Sine (top-right), Sine (bottom-left), and Cosine (bottom-right).

TRAVERSE TABLES.

Table of trigonometric values for angles from 0 to 90 degrees. Columns include degrees (2° to 87°), minutes (0' to 9'), and seconds (00 to 100). Rows show Cosine and Sine values for each angle.

TRAVERSE TABLES.

Table with columns for degrees (2° to 87°), Cosine, and Sine values. The table is organized into two main sections: Cosine (left) and Sine (right), with degree markings at the top and bottom. Each section contains a grid of numerical values corresponding to specific degrees and minutes.

TRAVERSE TABLES.

Table with 90 rows and columns labeled 2°, COSINE., SINE., and 2°. Contains trigonometric values for angles from 1 to 90 degrees. Includes intermediate columns for minutes (40' to 49').

TRAVERSE TABLES.

Table with columns for degrees (2° to 87°), Cosine, and Sine values. The table is organized into two main sections: Cosine (left) and Sine (right), with degree markings at the top and bottom. Each section contains a grid of numerical values corresponding to specific degrees and minutes.

TRAVERSE TABLES.

Table with columns for 3°, COSINE, SINE, and 3°. The cosine section has columns 0' to 9' and the sine section has columns 0' to 9'. Rows are numbered 1 to 100. The bottom row contains degree labels 86°, SINE, COSINE, 86°.

TRAVERSE TABLES.

Table with columns for degrees (3° to 86°) and minutes (10' to 19'). It contains two main sections: 'COSINE' and 'SINE'. Each section has two rows of data for each minute increment. The 'COSINE' section values decrease from approximately 0.9985 at 3° 10' to 0.8661 at 86° 49'. The 'SINE' section values increase from approximately 0.0552 at 3° 10' to 0.8661 at 86° 49'. The table is symmetric around 45°.

TRAVERSE TABLES.

Table with columns for COSINE and SINE, and rows for angles from 3° to 86°. Includes sub-columns for minutes (30' to 39') and values for each minute.

TRAVERSE TABLES.

Table with columns for degrees (3° to 86°) and minutes (40' to 49'). It contains two main sections: COSINE (left) and SINE (right). Each section has a grid of numerical values corresponding to the degree and minute intersections. The values are arranged in a grid that is 100 rows high and 10 columns wide for each section.

TRAVERSE TABLES.

Table with columns for degrees (3° to 86°) and minutes (50' to 10'). It contains two main sections: 'COSINE.' and 'SINE.' with numerical values for each degree-minute combination.

TRAVERSE TABLES.

Table with columns for COSINE and SINE, and rows for angles from 4° to 85°. Includes sub-columns for minutes and seconds.

TRAVERSE TABLES.

Table with columns for degrees (5°, 84°), Cosine, Sine, and degrees (84°, 5°). Rows contain numerical values for trigonometric functions.

TRAVERSE TABLES.

Table with columns for COSINE and SINE, and rows for degrees (5° to 84°) and minutes (10' to 41'). Includes numerical values for trigonometric functions.

TRAVERSE TABLES.

Traverse tables showing COSINE and SINE values for angles from 6° to 83°. The table is organized into two main sections: COSINE (left) and SINE (right). Each section contains two columns of values corresponding to angles from 6° to 83°. The cosine section includes columns for minutes (10' to 19') and the sine section includes columns for minutes (10' to 19'). Values are listed for each minute, often with a small 'd' indicating the last digit. For example, at 6° 10', the cosine is .9942 and the sine is .1074. At 83° 41', the cosine is .1170 and the sine is .9923.

TRAVERSE TABLES.

Table with columns for angles (6°, 83°), COSINE, SINE, and corresponding numerical values. The table is structured with rows for each minute of the angle and columns for each second of the angle.

TRAVERSE TABLES.

Table with columns for angles (6° to 83°) and rows for cosine and sine values. The table is divided into two main sections: the upper section for angles 6° to 83° and the lower section for angles 83° to 90°. Each section has columns for the angle and rows for the trigonometric functions. The table contains numerical values for cosine and sine at 1-minute intervals.

TRAVERSE TABLES.

Table with columns for degrees (6° to 83°), Cosine, and Sine values. The table is organized into two main sections: the top half for angles 6° to 83° and the bottom half for angles 83° to 6°. Each section contains two columns of trigonometric values (Cosine and Sine) and a column for degrees. The values are listed in a grid format with rows corresponding to degrees and columns corresponding to minutes.

TRAVERSE TABLES.

Table with columns for angles (7° to 82°), COSINE, and SINE. The table is a large grid of numerical values for various angles and minutes.

TRAVERSE TABLES.

8°	COSINE.										SINE.										8°	
	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'		
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10		
1	9903	9902	9902	9901	9901	9901	9900	9900	9899	9899	1392	1395	1397	1400	1403	1406	1409	1412	1415	1418	1	
2	9805	9805	9804	9803	9802	9801	9800	9800	9799	9798	2783	2789	2795	2801	2807	2812	2818	2824	2830	2835	2	
99	0580	0581	0582	0583	0584	0585	0586	0587	0588	0589	13'0823	1094	1364	1635	1906	2176	2447	2718	2989	3259	99	
100	0268	0268	0268	0267	0267	0267	0266	0266	0265	0265	13'0173	9461	9749	0037	0325	0613	0901	1189	1477	1765	100	
	60'	59'	58'	57'	56'	55'	54'	53'	52'	51'	60'	59'	58'	57'	56'	55'	54'	53'	52'	51'		

TRAVERSE TABLES.

Table with columns for degrees (8° to 81°) and minutes (10' to 19'). It contains two main sections: COSINE on the left and SINE on the right. Each section has a header row for the degree and a grid of values for minutes. The cosine values decrease from 0.9899 at 8°10' to 0.1909 at 81°10', while the sine values increase from 0.1421 at 8°10' to 0.9801 at 81°10'.

TRAVERSE TABLES.

Table with columns for degrees (8° to 81°), Cosine, and Sine values. The table is organized into two main sections: the top section for angles 8° to 80° and the bottom section for angles 81° to 80°. Each section has a 'COSINE.' column on the left and a 'SINE.' column on the right. The rows are numbered 1 through 100, corresponding to the degrees. Each row contains 11 values for cosine and 11 values for sine, with the last value in each row being the value for the next degree. The values are presented in a grid format with some bolded text for specific values.

TRAVERSE TABLES.

Table with columns for degrees (9° to 80°), Cosine, and Sine values. The table is organized into two main sections: Cosine (left) and Sine (right), with degree markings at the top and bottom. Each section contains a grid of numerical values corresponding to specific degree and minute increments.

TRAVERSE TABLES.

Table with columns for degrees (9° to 90°), cosine and sine values, and minute markings. Includes headers for 'COSINE.' and 'SINE.' and numerical data for degrees 9 through 89.

TRAVERSE TABLES.

Table with columns for COSINE and SINE, and rows for angles from 10° to 79°. The table contains numerical values for cosine and sine functions, organized in two main sections: COSINE on the left and SINE on the right. Each section has a main column for the angle and sub-columns for minutes (0' to 9').

TRAVERSE TABLES.

Table of Traverse Tables showing Cosine and Sine values for angles from 10° to 79°. The table includes columns for angles and corresponding cosine and sine values for each minute and second.

TRAVERSE TABLES.

Main table containing trigonometric values for angles 10 to 90 degrees. It is divided into two main sections: the top half for angles 10 to 90 degrees and the bottom half for angles 79 to 90 degrees. The top half has columns for Cosine and Sine, and the bottom half has columns for Sine and Cosine. Each section includes a row for the angle and a column for the function value.

TRAVERSE TABLES.

Table with columns for degrees (10° to 79°) and minutes (59' to 10'), and rows for Cosine and Sine values. The table is divided into two main sections: Cosine on the left and Sine on the right, with degree markings at the top and bottom.

TRAVERSE TABLES.

Table with columns for degrees (11°, 78°) and trigonometric functions (COSINE, SINE). It contains numerical values for various angles and minutes, organized in a grid format.

TRAVERSE TABLES.

Table with columns for degrees (11°, 78°) and trigonometric functions (COSINE, SINE). It contains numerical values for various angles from 1° to 100°.

TRAVERSE TABLES.

Table with columns for degrees (78°, 11°, 78°) and rows for minutes (59', 58', ..., 10'). It contains Cosine and Sine values for each minute. The table is split into Cosine and Sine sections by the 11-degree line.

TRAVERSE TABLES.

Table with columns for angles (12° to 77°) and rows for Cosine and Sine values. Includes labels for 'COSINE.' and 'SINE.' and numerical data for various degrees.

TRAVERSE TABLES.

Table with columns for angles (12°, 77°) and trigonometric functions (COSINE, SINE). It contains numerical values for various degrees and minutes, including Cosine and Sine values for angles from 12° to 77°.

TRAVERSE TABLES.

Table with columns for degrees (12° to 77°), Cosine, and Sine values. The table is organized into two main sections: Cosine and Sine, with degrees marked at the top and bottom. The data is presented in a grid format with numerical values for each degree and minute.

TRAVERSE TABLES.

Table with columns for degrees (12° to 77°), Cosine, Sine, and degrees (77° to 12°). Rows contain numerical values for each degree and minute.

TRAVERSE TABLES.

12°	COSINE.										SINE.										12°
	40'	41'	42'	43'	44'	45'	46'	47'	48'	49'	40'	41'	42'	43'	44'	45'	46'	47'	48'	49'	
	1	9757	9756	9755	9755	9754	9753	9753	9752	9751	'9751	'2193	2196	2198	2201	2204	2207	2210	2213	2215	

77°	SINE.										COSINE.										77°
	27'	19'	18'	17'	16'	15'	14'	13'	12'	11'	20'	19'	18'	17'	16'	15'	14'	13'	12'	11'	

TRAVERSE TABLES.

Table with columns for angles (12°, 10', 9', 8', 7', 6', 5', 4', 3', 2', 1', 10', 9', 8', 7', 6', 5', 4', 3', 2', 1', 77°) and rows for cosine and sine values. Includes a large grid of numerical data.

TRAVERSE TABLES.

Table with Cosine and Sine columns for angles from 13° to 76°. Includes numerical values for angles from 10' to 19' in 1' increments, with a final row for 50' to 41' in 1' decrements. The table is symmetric around 45°.

TRAVERSE TABLES.

13°	COSINE.										SINE.										13°
	20'	21'	22'	23'	24'	25'	26'	27'	28'	29'	20'	21'	22'	23'	24'	25'	26'	27'	28'	29'	
	1	9730	9730	9729	9728	9728	9727	9726	9726	9725	9724	2306	2309	2312	2315	2317	2320	2323	2326	2329	
40'	30'	38'	37'	36'	35'	34'	33'	32'	31'	40'	39'	38'	37'	36'	35'	34'	33'	32'	31'	40'	

TRAVERSE TABLES.

Table with columns for degrees (13° to 76°) and minutes (30' to 21'). It contains two main sections: 'COSINE.' and 'SINE.' with numerical values for each degree and minute combination.

TRAVERSE TABLES.

Table with columns for degrees (14° to 75°) and rows for minutes (00' to 60'). It is divided into two main sections: COSINE (left) and SINE (right). Each section contains a grid of numerical values corresponding to the degree and minute intersections.

TRAVERSE TABLES.

Traverse tables for 14 degrees, showing Cosine and Sine values for angles from 0 to 90 minutes. The table is organized into two main sections: 14° Cosine and 14° Sine, with a 75° Sine and 75° Cosine section at the bottom. Each section contains columns for minutes (40' to 49') and rows for degrees (1 to 100).

TRAVERSE TABLES.

Table showing Cosine and Sine values for angles from 15° to 74°. The table is organized with degrees on the left and right edges, and minutes (0' to 9') on the top and bottom edges. The main body contains numerical values for Cosine and Sine.

TRAVERSE TABLES.

Main table of traverse tables with columns for Cosine and Sine values from 15 degrees to 74 degrees. The table is organized in a grid with degrees and minutes as headers.

TRAVERSE TABLES.

Table containing cosine and sine values for angles from 15 degrees to 74 degrees. The table is organized into columns for degrees and minutes (20' to 29') and rows for angles (1 to 100 degrees). The top section is labeled 'COSINE.' and the bottom section is labeled 'SINE.'. Values are provided for each degree-minute combination.

TRAVERSE TABLES.

Table with columns for angles (15° to 74°) and rows for cosine and sine values. The table is organized into two main sections: Cosine (left) and Sine (right), with sub-columns for minutes (40' to 49').

TRAVERSE TABLES.

Table with columns for degrees (15° to 74°), minutes (5' to 59'), and seconds (1' to 1'). It contains sine and cosine values for each degree-minute-second combination.

TRAVERSE TABLES.

Table with columns for degrees (16° to 73°) and minutes (10' to 19'). It contains two main sections: COSINE and SINE, with values for each degree and minute combination.

TRAVERSE TABLES.

Table of trigonometric values for angles 16° to 73°. Columns include angle, cosine values (16° to 73°), and sine values (73° to 16°). Rows are numbered 1 to 100.

TRAVERSE TABLES.

Table with columns for 16° (Cosine and Sine) and 73° (Sine and Cosine). Rows represent angles from 1° to 100°. Each row contains 19 values for the cosine table and 19 values for the sine table, with an additional column for the angle number.

TRAVERSE TABLES.

Table with columns for Cosine and Sine values from 16° to 73°. The table is organized into two main sections: Cosine (top) and Sine (bottom), each with a degree column on the left and a minute column on the right. Values are listed in a grid format.

TRAVERSE TABLES.

Table with columns for angles (17°, 72°) and rows for cosine and sine values. Includes sub-columns for minutes (10' to 19') and a bottom section for 72° sine and cosine values.

TRAVERSE TABLES.

Table with columns for 17° COSINE. and SINE., and 17° COSINE. and SINE. at the bottom. Rows 1-100 contain numerical values for angles from 1° to 100°.

TRAVERSE TABLES.

17°	COSINE.										SINE.										17°
	50'	51'	52'	53'	54'	55'	56'	57'	58'	59'	50'	51'	52'	53'	54'	55'	56'	57'	58'	59'	
	1	9520	9519	9518	9517	9516	9515	9514	9513	9512	9511	3062	3065	3068	3071	3074	3076	3079	3082	3085	
100	1951	1862	1773	1684	1594	1505	1415	1326	1236	1146	3062	3065	3068	3071	3074	3076	3079	3082	3085	3087	
72°	SINE.										COSINE.										72°
	10'	9'	8'	7'	6'	5'	4'	3'	2'	1'	10'	9'	8'	7'	6'	5'	4'	3'	2'	1'	

TRAVERSE TABLES.

Table with columns for angles (18°, 71°) and rows for cosine and sine values, including sub-columns for minutes (10' to 19').

TRAVERSE TABLES.

Table containing Cosine and Sine values for angles from 18 to 71 degrees. The table is organized in two main sections: the top section for angles 18-70 degrees and the bottom section for angles 71-90 degrees. Each section includes columns for the angle and corresponding Cosine and Sine values.

TRAVERSE TABLES.

Table of trigonometric values for 18 degrees, including columns for COSINE and SINE, and rows for angles from 1 to 100 degrees. The table is split into two main sections for 18° and 71°.

TRAVERSE TABLES.

Table with columns for 19 degrees, COSINE, SINE, and 70 degrees. It contains numerical values for trigonometric functions across various angles and minutes.

TRAVERSE TABLES.

Table of traverse tables showing Cosine and Sine values for degrees 19 to 70. The table is structured with degrees and minutes on the left and right sides, and the corresponding trigonometric values in the center. It includes rows for Cosine and Sine for each degree from 19 to 70, with minute markings below each degree.

TRAVERSE TABLES.

Table with columns for angles (19° to 70°), Cosine, and Sine values. The table is divided into two main sections: the upper section for angles 19° to 69° and the lower section for angles 70° to 79°. Each section has columns for 'COSINE.' and 'SINE.' with sub-columns for minutes (50' to 59').

TRAVERSE TABLES.

Table with 10 columns for degrees (20 to 69) and 10 rows for minutes (0' to 9'). It contains COSINE and SINE values for each degree-minute combination. The table is symmetric, with COSINE values increasing and SINE values decreasing as the degree increases.

TRAVERSE TABLES.

Table with columns for Cosine (20° to 69°) and Sine (20° to 69°) values, organized in two main sections: Cosine on the left and Sine on the right. Each section contains rows for degrees (1-69) and minutes (0-59). The table is a standard traverse table used for navigation and surveying.

TRAVERSE TABLES.

Table of trigonometric values for angles from 20 to 69 degrees. It includes columns for Cosine and Sine, with sub-columns for minutes (30' to 39'). The table is organized into four quadrants: Cosine (20-30), Sine (30-60), Cosine (60-69), and Sine (69-90).

TRAVERSE TABLES.

Table with columns for COSINE and SINE, and rows for angles from 21° to 68°. The table is divided into two main sections: 21° (top) and 68° (bottom). Each section has a 'COSINE' side and a 'SINE' side. The angles are listed on the left and right margins. The table contains numerical values for each angle and minute, with some values in bold or italicized fonts.

TRAVERSE TABLES.

21°	COSINE.																			SINE.																			21°
	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'																			
	1	9325	9324	9323	9322	9321	9320	9319	9318	9317	9316	'3611	'3614	'3616	'3619	'3622	'3624	'3627	'3630	'3633	'3635	1																	
100	2534	2429	2324	2219	2113	2008	1902	1797	1691	1586	36'1082	35'1353	34'1625	33'1896	32'2167	31'2438	30'2709	29'2980	28'3251	27'3522	100																		
	50'	49'	48'	47'	46'	45'	44'	43'	42'	41'	50'	49'	48'	47'	46'	45'	44'	43'	42'	41'																			
68°	SINE.																			COSINE.																			68°

TRAVERSE TABLES.

Table with columns for degrees (21° to 68°), Cosine, Sine, and degrees (68° to 21°). It contains numerical values for trigonometric functions across various angles.

TRAVERSE TABLES.

21° COSINE. SINE. 21°. Table with columns for degrees and minutes, and rows for degrees 1 to 100. Includes sub-headers for 30', 31', 32', 33', 34', 35', 36', 37', 38', 39' for cosine and sine.

TRAVERSE TABLES.

Table with columns for angles (21°, 40' to 49', 21°), Cosine, Sine, and angles (68°, 19' to 11', 68°). It contains numerical values for trigonometric functions.

TRAVERSE TABLES.

Table with columns for angle (21° to 68°) and rows for cosine and sine values. The table is split into two main sections: Cosine (left) and Sine (right). Each section has a top row for the angle and a bottom row for the complementary angle. The middle rows contain numerical values for each minute of the arc.

TRAVERSE TABLES.

Table with columns for degrees (22° to 67°) and minutes (0' to 9'). It contains two main sections: COSINE (left) and SINE (right). Each section has a grid of numerical values corresponding to the degrees and minutes. The values are arranged in a regular grid pattern, with the cosine values on the left and sine values on the right.

TRAVERSE TABLES.

Main table with columns for 22°, COSINE, SINE, and 22°. Rows are numbered 1 to 100. The table contains trigonometric values for degrees from 0 to 100.

67°

SINE

COSINE

67°

TRAVERSE TABLES.

Table with columns for degrees (22° to 67°) and minutes (50' to 1'), containing cosine and sine values for each angle. The table is divided into two main sections: COSINE and SINE, with corresponding degree labels at the top and bottom.

TRAVERSE TABLES.

23°	COSINE.									SINE.									23°			
	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	0'	1'	2'	3'	4'	5'	6'	7'		8'	9'	
1	9205	9204	9203	9202	9201	9199	9198	9197	9196	9195	9190	9189	9188	9187	9186	9185	9184	9183	9182	9181	9180	1
2	8410	8408	8406	8403	8401	8399	8396	8394	8392	8391	8386	8385	8384	8383	8382	8381	8380	8379	8378	8377	8376	2
3	7615	7612	7608	7605	7601	7598	7595	7591	7588	7587	7582	7581	7580	7579	7578	7577	7576	7575	7574	7573	7572	3
4	6820	6816	6811	6807	6802	6797	6793	6788	6784	6783	6778	6777	6776	6775	6774	6773	6772	6771	6770	6769	6768	4
5	6025	6020	6014	6008	6002	5997	5991	5985	5980	5979	5974	5973	5972	5971	5970	5969	5968	5967	5966	5965	5964	5
6	5230	5223	5217	5210	5203	5196	5189	5182	5176	5175	5170	5169	5168	5167	5166	5165	5164	5163	5162	5161	5160	6
7	4435	4427	4419	4411	4403	4395	4388	4380	4372	4371	4366	4365	4364	4363	4362	4361	4360	4359	4358	4357	4356	7
8	3640	3631	3622	3613	3604	3595	3586	3577	3567	3566	3561	3560	3559	3558	3557	3556	3555	3554	3553	3552	3551	8
9	2845	2835	2825	2815	2804	2794	2784	2774	2763	2762	2757	2756	2755	2754	2753	2752	2751	2750	2749	2748	2747	9
10	2050	2039	2028	2016	2005	1994	1982	1971	1959	1958	1953	1952	1951	1950	1949	1948	1947	1946	1945	1944	1943	10
100	0505	0391	0277	0164	0050	9936	9822	9707	9593	9592	9587	9586	9585	9584	9583	9582	9581	9580	9579	9578	9577	100

TRAVERSE TABLES.

Main table of cosine and sine values for angles from 23 to 66 degrees. Includes degree markings on the left and right sides, and function labels 'COSINE' and 'SINE' at the top and bottom.

TRAVERSE TABLES.

Table of Traverse Tables showing COSINE and SINE values for angles from 23 degrees to 66 degrees. The table is split into two main sections: COSINE (top) and SINE (bottom), with columns for minutes (30' to 0') and rows for degrees (1 to 100).

TRAVERSE TABLES.

Table with columns for angles (23° to 66°) and trigonometric functions (COSINE, SINE). The table contains a grid of numerical values for sine and cosine functions across various angles and minutes.

TRAVERSE TABLES.

Table with columns for degrees (24, 65) and rows for cosine and sine values. The table is organized into four quadrants: Cosine (top-left), Sine (top-right), Sine (bottom-left), and Cosine (bottom-right).

TRAVERSE TABLES.

Table with columns for angles (24°, 65°) and trigonometric functions (COSINE, SINE). Rows represent angles from 1° to 100° in 1-degree increments. Each row contains 19 values for cosine and 19 values for sine, with the angle value in degrees at the far left and right of each row.

TRAVERSE TABLES.

Table with columns for angles (24 to 65) and values for Cosine and Sine. The table is organized into two main sections: Cosine and Sine, each with sub-columns for angles from 20' to 29'. The values are numerical, representing trigonometric functions.

TRAVERSE TABLES.

Table with columns for angles (24 to 65 degrees) and rows for cosine and sine values. Includes sub-columns for minutes (30 to 39) and a final column for seconds (1 to 100).

TRAVERSE TABLES.

Table with columns for angles (24° to 65°) and trigonometric functions (COSINE, SINE). The table is organized into four quadrants: top-left (24° to 65° COSINE), top-right (24° to 65° SINE), bottom-left (65° to 24° SINE), and bottom-right (65° to 24° COSINE). Each quadrant contains a grid of numerical values for every minute of the angle.

TRAVERSE TABLES.

Table of Cosine and Sine values from 25 degrees to 64 degrees. The table is divided into two main sections: 25° to 60° and 60° to 64°. Each section has columns for 'Cosine.' and 'Sine.' with sub-columns for minutes (0' to 9').

TRAVERSE TABLES.

Table with columns for angles (25°, 64°) and trigonometric functions (COSINE, SINE). Rows are numbered 1 to 100, representing degrees. Each row contains values for minutes 0' to 19' for both cosine and sine functions.

TRAVERSE TABLES.

Table of Trigonometric Values (Sine and Cosine) for angles 25° to 64°. The table is organized into four quadrants: 25° to 90° (top), 90° to 64° (middle), and 64° to 90° (bottom). Each quadrant contains columns for degrees and minutes, and rows for degrees and minutes. The top and bottom quadrants are labeled 'COSINE' and 'SINE' respectively. The middle two quadrants are labeled 'SINE' and 'COSINE' respectively.

TRAVERSE TABLES.

Table with columns for angles (25° to 64°) and trigonometric functions (COSINE, SINE). The table is divided into four quadrants: 25°-64° Cosine/Sine, 64°-25° Sine/Cosine, and 64°-25° Cosine/Sine. Each quadrant contains a grid of numerical values for angles from 30' to 21'.

TRAVERSE TABLES.

Table of Traverse Tables showing Cosine and Sine values for angles from 25 degrees to 64 degrees. The table is organized into two main sections: Cosine (top half) and Sine (bottom half). Each section includes degree markings on the left and right edges and minute markings along the top and bottom edges. The central columns contain numerical values for each degree and minute combination.

TRAVERSE TABLES.

Table with columns for COSINE (25° to 64°) and SINE (25° to 64°). Each section contains a grid of numerical values for degrees and minutes.

TRAVERSE TABLES.

Table with columns for 26°, COSINE., SINE., and 26°. The table lists numerical values for various degrees and minutes.

TRAVERSE TABLES.

Table of trigonometric values for angles from 26 to 63 degrees. Columns include angle (26°, 21', 21', 22', 23', 24', 25', 26', 27', 28', 29'), Cosine, Sine, and angle (20', 21', 22', 23', 24', 25', 26', 27', 28', 29', 63°). Rows are numbered 1 through 100.

TRAVERSE TABLES.

Main table with columns for COSINE and SINE, and rows for angles from 26 to 63 degrees. Each row contains values for minutes 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39.

TRAVERSE TABLES.

Table with columns for COSINE and SINE, and rows for degrees from 26 to 63. Each row contains 18 values for cosine and 18 for sine, with degree and minute markings.

TRAVERSE TABLES.

Table with columns for COSINE and SINE at 26 degrees, and SINE and COSINE at 63 degrees. It includes degree markings (60', 61', etc.) and numerical values for trigonometric functions.

TRAVERSE TABLES.

Table with columns for degrees (27° to 62°), Cosine, and Sine values. The table is organized into two main sections: Cosine (left) and Sine (right), with degree markings at the top and bottom. Each section contains a grid of numerical values corresponding to specific degree and minute increments.

TRAVERSE TABLES.

Table with 18 columns for degrees (27 to 62) and 60 rows for minutes (1 to 60). It contains Cosine and Sine values for each degree and minute. The table is divided into two main sections: Cosine (left) and Sine (right), with a central column for degree labels. The values are arranged in a grid format, with the top-left corner labeled '27°' and 'COSINE.' and the bottom-right corner labeled '62°' and 'SINE.'

TRAVERSE TABLES.

Table of Cosine and Sine values for angles from 27 to 62 degrees. The table is organized into two main sections: Cosine (top) and Sine (bottom). The top section shows Cosine values for angles 27 to 62 degrees, and the bottom section shows Sine values for the same angles. The columns represent minutes from 00 to 59. The table contains numerical data for each degree and minute combination.

TRAVERSE TABLES.

Table with columns for degrees (28°, 61°) and trigonometric functions (COSINE, SINE). Rows represent degrees from 1 to 100. Values are listed in columns for minutes (0' to 9').

TRAVERSE TABLES

Table with columns for angles (28°, 61°) and trigonometric functions (COSINE, SINE). It contains a grid of numerical values for various angles and functions.

TRAVERSE TABLES.

Table with columns for COSINE and SINE, and rows for angles from 1° to 100°. Includes sub-columns for minutes and seconds.

TRAVERSE TABLES.

Table with columns for degrees (28°, 61°) and minutes (50', 51', 52', 53', 54', 55', 56', 57', 58', 59'), and rows for cosine and sine values. The table is organized into two main sections: Cosine (left) and Sine (right), each with a degree column and minute columns. The values are arranged in a grid format.

TRAVERSE TABLES.

Table of trigonometric values for angles 29° to 60°. Columns include angle, cosine values (30' to 39'), sine values (30' to 39'), and angle again. Rows are numbered 1 to 100.

TRAVERSE TABLES.

Table with columns for angle (30°, 59°) and rows for Cosine and Sine values, including degree and minute markings.

TRAVERSE TABLES

30°	COSINE.																			SINE.																			30°
	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'																			
	1	8646	8644	8643	8641	8640	8638	8637	8635	8634	8632	5025	5028	5030	5033	5035	5038	5040	5043	5045	5048	1																	
100	50	49	48	47	46	45	44	43	42	41	50	49	48	47	46	45	44	43	42	41	100																		

TRAVERSE TABLES.

Table of Trigonometric Values (30° to 59°) including columns for COSINE and SINE, with values for minutes (30' to 59') and seconds (0' to 59'). The table is a large grid with degree markings on the top and bottom, and cosine/sine labels in the middle.

TRAVERSE TABLES.

Table with 31° and 58° labels, containing Cosine and Sine values for various angles and minutes. The table is organized into four quadrants: 31° Cosine, 31° Sine, 58° Sine, and 58° Cosine.

TRAVERSE TABLES.

Table of traverse tables with columns for COSINE and SINE, and rows for angles from 31° to 58°. Each row contains 20 columns of numerical values. The table is organized into two main sections: COSINE (left) and SINE (right). At the bottom, there are two additional sections: SINE (left) and COSINE (right), representing the complementary angles. The values are listed in a grid format, with angles in degrees and minutes indicated at the top and bottom of the columns.

TRAVERSE TABLES.

31°	COSINE.										SINE.										31°
	30'	31'	32'	33'	34'	35'	36'	37'	38'	39'	30'	31'	32'	33'	34'	35'	36'	37'	38'	39'	
	1	8526	8525	8523	8522	8520	8519	8517	8516	8514	8513	5225	5227	5230	5232	5235	5237	5240	5242	5245	
30	2640	2648	2656	2664	2672	2680	2688	2696	2704	2712	5269	5271	5274	5276	5279	5281	5284	5286	5289	5291	30
58°	SINE.										COSINE.										58°
30'	29'	28'	27'	26'	25'	24'	23'	22'	21'	30'	29'	28'	27'	26'	25'	24'	23'	22'	21'		
100	2640	2648	2656	2664	2672	2680	2688	2696	2704	2712	5269	5271	5274	5276	5279	5281	5284	5286	5289	5291	100

TRAVERSE TABLES.

Table with columns for angles (31° to 58°) and rows for cosine and sine values. The table is divided into two main sections: the top section for 31° to 58° and the bottom section for 58° to 31°. Each section has columns for cosine and sine, with sub-columns for minutes and seconds. The values are listed in a grid format, with some cells containing multiple values separated by commas or semicolons.

TRAVERSE TABLES.

Table with columns for angles (31° to 58°) and trigonometric functions (COSINE, SINE). The table is organized into two main sections: the top section for angles 31° to 58° and the bottom section for angles 58° to 31°. Each section contains two columns of data: COSINE and SINE. The columns are labeled with minutes and seconds (e.g., 50', 51', 52', etc.). The rows are numbered from 1 to 100, corresponding to the degrees. The values are presented in a grid format, with some cells containing multiple values separated by commas or spaces. The table is bordered by a thick line, and the angles 31° and 58° are printed at the top and bottom corners respectively.

TRAVERSE TABLES.

Main table containing Cosine and Sine values for angles from 32° to 57°. The table is organized into two main sections: Cosine (left) and Sine (right), with angles marked at the corners (32°, 57°). Each section has columns for degrees (0' to 9') and rows for minutes (1' to 10').

TRAVERSE TABLES.

Traverse tables with columns for degrees (32°, 57°), COSINE, and SINE. The table contains numerical values for each degree and minute combination.

TRAVERSE TABLES.

Table with columns for COSINE and SINE, and rows for angles from 1 to 100 degrees. Includes degree markings at 32° and 57°.

TRAVERSE TABLES.

Table with columns for degrees (33° to 56°) and minutes (10' to 19'), and rows for Cosine and Sine values. The table is split into two main sections: the top half for Cosine and the bottom half for Sine, with degree labels at the corners.

TRAVERSE TABLES.

Table with columns for angles (33°, 56°) and rows for cosine and sine values. Includes a central header 'COSINE.' and 'SINE.' and a grid of numerical values for each degree and minute.

TRAVERSE TABLES.

Table with columns for degrees (34° to 55°) and minutes (10' to 19'). It contains two main sections: COSINE and SINE. Each section has a grid of numerical values corresponding to the degree and minute intersections.

TRAVERSE TABLES.

Table with columns for Cosine (34° to 55°) and Sine (55° to 34°). It contains numerical values for angles from 34 degrees to 55 degrees in increments of 1 minute.

TRAVERSE TABLES.

Table with columns for angles (34° to 55°), Cosine, and Sine. It contains numerical values for trigonometric functions across various degrees and minutes.

TRAVERSE TABLES.

Large table with columns labeled COSINE and SINE, and rows numbered 1 to 100. Includes sub-labels 34° and 55° at the top and bottom corners.

TRAVERSE TABLES.

Table with columns for angles (34° to 55°) and rows for cosine and sine values. The table is organized into four quadrants: Cosine (34°-45°), Sine (45°-55°), Sine (55°-45°), and Cosine (45°-34°). Each quadrant contains a grid of numerical values for angles ranging from 1' to 10' increments.

TRAVERSE TABLES.

Table with columns for COSINE and SINE, and rows for angles from 35° to 54°. The table contains numerical values for trigonometric functions at 1-minute intervals.

TRAVERSE TABLES.

Table with columns for degrees (36° to 53°), Cosine, and Sine values. Includes a central section for degrees 36-53 and bottom sections for 53-90 and 90-36.

TRAVERSE TABLES.

Table with columns for angles (36°, 53°) and rows for cosine and sine values. The table is divided into four quadrants: Cosine (36°-53°), Sine (36°-53°), Sine (53°-36°), and Cosine (53°-36°). Each quadrant contains a grid of numerical values corresponding to specific angles and minutes.

TRAVERSE TABLES.

Table with columns for angles (36° to 100°), Cosine, and Sine values. The table is organized into three main sections: Cosine (top), Sine (middle), and Cosine (bottom). Each section contains numerical values for various angles and minutes.

TRAVERSE TABLES.

Table with columns for degrees (36° to 53°) and minutes (40' to 49'), containing Cosine and Sine values. The table is organized into two main sections: Cosine on the left and Sine on the right, with degree markers at the top and bottom.

TRAVERSE TABLES.

36° COSINE. SINE. 36°. Table with 100 rows and 20 columns for each quadrant. Includes degree and minute markings for Cosine and Sine values.

TRAVERSE TABLES.

37°

COSINE.

SINE.

37°

Main table containing trigonometric values for angles 37° to 52°. The table is organized into two main sections: COSINE (left) and SINE (right). Each section has columns for degrees (0-9) and minutes (0-9). The values are listed in a grid format, with some cells containing multiple values for different minutes. The table is bounded by 37° at the top and 52° at the bottom.

52°

SINE.

COSINE.

52°

TRAVERSE TABLES.

Table with columns for angles (37° to 52°) and rows for cosine and sine values. The table is organized into two main sections: Cosine (left) and Sine (right), each with sub-columns for minutes (10' to 19').

TRAVERSE TABLES.

Table with columns for 37°, COSINE, SINE, and 37°. The table is organized into two main sections, each with a 37° angle label at the top and bottom corners. Each section has two main columns: COSINE and SINE. The top row of each section lists minutes from 20' to 29'. The rows are numbered 1 to 100 on both the left and right sides. The values in the cells represent trigonometric values for each minute interval.

TRAVERSE TABLES.

Table with columns for COSINE and SINE, and rows for angles from 37° to 52°. Each row contains 18 cosine values and 18 sine values.

TRAVERSE TABLES.

Table with columns for COSINE and SINE, and rows for angles from 37° to 52°. Includes degree and minute markings and numerical values for trigonometric functions.

TRAVERSE TABLES.

Table with columns for angles (38° to 51°) and trigonometric functions (COSINE, SINE). Rows represent angles from 1 to 100 minutes. The table is divided into two main sections: the upper section for angles 38° to 51° and the lower section for angles 51° to 38°.

TRAVERSE TABLES.

Table with columns for COSINE and SINE, and rows for angles from 38° to 51°. Each row contains 19 columns of numerical values for cosine and 19 columns for sine.

TRAVERSE TABLES.

Table with columns for Cosine and Sine values, ranging from 39° to 50°. Includes sub-columns for degrees (10' to 19') and minutes (50' to 41').

TRAVERSE TABLES.

Table of Traverse Tables showing Cosine and Sine values for angles from 39 degrees to 50 degrees. The table is organized into two main sections: 39° (top) and 50° (bottom). Each section contains a grid of values for Cosine and Sine, with columns labeled from 30' to 39' and rows labeled from 1 to 100. The 39° section has Cosine on the left and Sine on the right. The 50° section has Sine on the left and Cosine on the right. The values are arranged in a grid format, with some values in bold or italicized for emphasis.

TRAVERSE TABLES.

Table with columns for Cosine and Sine, rows for angles 40 to 49 degrees, and sub-columns for minutes (10' to 19'). Includes numerical values for both trigonometric functions.

TRAVERSE TABLES.

Large table with columns for Cosine and Sine, and rows for angles from 40° to 49°. It includes numerical values for each minute of an angle.

TRAVERSE TABLES.

41°	COSINE.										SINE.									41°																																																																															
	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	10'	11'	12'	13'	14'	15'	16'	17'	18'		19'																																																																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98

TRAVERSE TABLES.

Table with columns for angles (41° to 48°) and rows for cosine and sine values. The table is organized into four quadrants: 41° Cosine/Sine, 48° Sine/Cosine, and two unlabeled sections at the bottom.

TRAVERSE TABLES.

Table with columns for degrees (41° to 48°) and trigonometric values (COSINE, SINE). It contains a grid of numerical data for each degree and minute combination.

TRAVERSE TABLES.

Table of Trigonometric Functions (Cosine and Sine) for angles 41° and 48°. The table includes columns for angles in degrees and minutes, and rows for values of cosine and sine. It is divided into two main sections: 41° at the top and 48° at the bottom.

TRAVERSE TABLES.

42°	COSINE.										SINE.										42°
	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	0'	1'	2'	3'	4'	5'	6'	7'	8'	9'	
1	7431	7430	7428	7426	7424	7422	7420	7418	7416	7414	6691	6693	6696	6698	6700	6702	6704	6706	6709	6711	1
2	4863	4859	4855	4851	4847	4843	4840	4836	4832	4828	13383	3387	3391	3396	3400	3404	3409	3413	3417	3421	2
3	2294	2289	2283	2277	2271	2265	2259	2253	2248	2242	20074	0080	0087	0093	0100	0106	0113	0119	0126	0132	3
4	9726	9718	9710	9702	9695	9687	9679	9671	9663	9656	26765	6774	6783	6791	6800	6808	6817	6826	6834	6843	4
5	7157	7148	7138	7128	7118	7109	7099	7089	7079	7070	33457	3467	3478	3489	3500	3511	3521	3532	3543	3554	5
6	4589	4577	4565	4554	4542	4530	4519	4507	4495	4483	46048	0161	0174	0187	0200	0213	0226	0239	0251	0264	6
7	2020	2007	1993	1979	1966	1952	1938	1925	1911	51897	46839	6854	6869	6885	6900	6915	6930	6945	6960	6975	7
8	9452	9436	9420	9405	9389	9374	9358	9342	9327	59311	53530	3548	3565	3582	3600	3617	3634	3651	3669	3686	8
9	6883	6866	6848	6830	6813	6795	6778	6760	6743	66725	60222	0241	0261	0280	0300	0319	0338	0358	0377	0397	9
10	4314	4295	4276	4256	4237	4217	4198	4178	4159	74139	66913	6935	6956	6978	6999	7021	7043	7064	7086	7107	10
11	1746	1725	1703	1682	1660	1639	1617	1596	1574	81553	73624	3628	3652	3676	3699	3723	3747	3771	3794	3818	11
12	9177	9154	9131	9107	9084	9060	9037	9014	8990	88967	80296	0322	0348	0373	0399	0425	0451	0477	0503	0529	12
13	6609	6584	6558	6533	6508	6482	6457	6432	6406	96381	86927	7015	7043	7071	7099	7127	7155	7184	7212	7240	13
14	4040	4013	3986	3958	3931	3904	3877	3849	3822	103795	93678	3709	3739	3769	3799	3830	3860	3890	3920	3950	14
15	1472	1443	1413	1384	1355	1326	1296	1267	1238	111209	103730	0402	0434	0467	0499	0532	0564	0596	0629	0661	15
16	8903	8872	8841	8810	8779	8747	8716	8685	8654	118622	107061	7095	7130	7165	7199	7234	7268	7303	7337	7372	16
17	6335	6302	6268	6235	6202	6169	6136	6103	6070	126036	113752	3789	3826	3862	3899	3936	3973	4009	4046	4083	17
18	3766	3731	3696	3661	3626	3591	3556	3521	3485	133450	120444	0482	0521	0560	0599	0638	0677	0716	0754	0793	18
19	1198	1161	1124	1087	1050	1012	0975	0938	0901	140864	127115	7176	7217	7258	7299	7340	7381	7422	7463	7504	19
20	8629	8590	8551	8512	8473	8434	8395	8356	8317	148278	133826	3869	3913	3956	3999	4042	4085	4128	4172	4215	20
21	6060	6020	5979	5938	5897	5856	5815	5774	5733	155692	140517	0563	0608	0654	0699	0744	0790	0835	0880	0926	21
22	3492	3449	3406	3363	3320	3278	3235	3192	3149	163106	147209	7256	7304	7351	7399	7446	7494	7541	7589	7636	22
23	0923	0879	0834	0789	0744	0699	0654	0610	0565	170520	153900	3950	3999	4049	4099	4148	4198	4248	4297	4347	23
24	8355	8308	8261	8215	8168	8121	8074	8027	7981	177934	160591	0643	0695	0747	0799	0851	0902	0954	1006	1058	24
25	5786	5738	5689	5640	5591	5543	5494	5445	5396	185348	167283	7337	7391	7445	7499	7553	7607	7661	7715	7768	25
26	3218	3167	3116	3066	3015	2964	2914	2863	2812	192762	173974	4030	4086	4143	4199	4255	4311	4367	4423	4479	26
27	0649	0597	0544	0491	0439	0386	0333	0281	0228	200175	180665	0724	0782	0840	0899	0957	1015	1073	1132	1190	27
28	8081	8026	7972	7917	7862	7808	7753	7699	7644	207589	187357	7147	7478	7538	7599	7659	7719	7780	7840	7901	28
29	5512	5456	5399	5343	5286	5230	5173	5116	5060	215003	194048	4111	4173	4236	4298	4361	4424	4486	4549	4611	29
30	2943	2885	2827	2768	2710	2651	2593	2534	2476	222417	200739	0804	0869	0934	0998	1063	1128	1193	1257	1322	30
31	0375	0315	0254	0194	0133	0073	0012	9952	9892	229831	207430	7498	7564	7631	7698	7765	7832	7899	7966	8033	31
32	7806	7744	7682	7619	7557	7495	7432	7370	7307	237245	214122	4191	4260	4329	4398	4467	4537	4606	4675	4744	32
33	5238	5174	5109	5045	4981	4916	4852	4788	4723	244659	220813	0884	0956	1027	1098	1170	1241	1312	1383	1454	33
34	2669	2603	2537	2471	2404	2338	2272	2205	2139	252073	227504	7578	7651	7725	7798	7872	7945	8018	8092	8165	34
35	0101	0033	9964	9896	9828	9760	9692	9623	9555	259487	234196	4271	4347	4423	4498	4574	4649	4725	4800	4876	35
36	7532	7462	7392	7322	7252	7181	7111	7041	6971	266901	240887	0965	1043	1120	1198	1276	1354	1431	1509	1587	36
37	4964	4892	4819	4747	4675	4603	4531	4459	4387	274314	247578	7658	7738	7818	7898	7978	8058	8138	8218	8297	37
38	2395	2321	2247	2173	2099	2025	1951	1877	1803	281728	254279	4352	4434	4516	4598	4680	4762	4844	4926	5008	38
39	9826	9751	9675	9599	9523	9447	9371	9295	9218	289142	260961	1045	1129	1214	1298	1382	1466	1551	1635	1719	39
40	7258	7180	7102	7024	6946	6868	6790	6712	6634	296556	267652	7739	7825	7912	7998	8084	8171	8257	8343	8430	40
41	4689	4610	4530	4450	4370	4290	4210	4130	4050	303970	277434	4432	4521	4609	4698	4786	4875	4963	5052	5140	41
42	2121	2039	1957	1875	1794	1712	1630	1548	1466	311384	281035	1126	1216	1307	1398	1489	1579	1670	1760	1851	42
43	9552	9469	9385	9301	9217	9133	9050	8966	8882	318798	287726	7819	7912	8005	8098	8191	8283	8376	8469	8562	43
44	6984	6898	6812	6727	6641	6555	6469	6384	6298	326212	294417	4513	4608	4703	4798	4893	4988	5083	5178	5273	44
45	4415	4328	4240	4152	4065	3977	3889	3801	3714	333626	301109	1206	1303	1401	1498	1595	1692	1789	1886	1983	45
46	1847	1757	1667	1578	1488	1399	1309	1219	1129	341040	307800	7900	7999	8098	8198	8297	8396	8495	8595	8694	46
47	9278	9187	9095	9003	8912	8820	8729	8637	8545	348454	314491	4593	4695	4796	4898	4999	5101	5202	5303	5405	47
48	6710	6616	6523	6429	6336	6242	6148	6055	5961	355867	321183	1286	1390	1494	1598	1701	1805	1908	2012	2115	48
49	4141	4046	3950	3855	3759	3664	3568	3473	3377	363281	327874	7980	8086	8192	8297	8403	8509	8615	8721	8826	49
50	1572	1475	1378	1280	1183	1085	988	890	793	370695	334565	4673	4781	4889	4997	5105	5213	5321	5429	5537	50
51	9004	8905	8805	8706	8607	8507	8408	8308	8209	378109	341257	1367	1477	1587	1697	1808	1918	2028	2138	2248	51
52	6435	6334	6233	6132	6030	5929	5827	5726	5625	385523	347948	8060	8173	8285	8397	8510	8622	8734	8846	8958	52
53	3867	3764	3660	3557	3454	3351	3247	3144	3040	392937	354639	4754	4868	4983	5097	5212	5326	5440	5555	5669	53
54	1298	1193	1088	983	878	772	667	562	456	40351	361331	1447	1564	1681	1797	1914	2030	2147	2263	2380	54
55	8730	8623	8515	8408	8301	8194	8087	7979	7872	407765	368022	8141	8260	8378	8497	8616	8735	8853	8972	9091	55
56	6161	6052	5943	5834	5725	5616	5506	5397	5288	415179	374713	4834	4955	5076	5197	5318	5439	5560	5681	5801	56
57	3593	3482	3371	3260	3149	3037	2926	2815	2704	422593	381404	1528	1651	1774	1897	2020	2143	2266	2389	2512	57
58	1024	0911	0798	0685	0572	0459	0346	0233	0120	430006	388096	8221	8346	8472	8597	8722	8847	8973	9098	9223	58
59	8455	8341	8																		

TRAVERSE TABLES.

	COSINE.										SINE.										42°
	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	
1	7412	7410	7408	7406	7404	7402	7400	7398	7396	7394	6713	6715	6717	6719	6722	6724	6726	6728	6730	6732	1
2	4824	4820	4816	4812	4808	4804	4800	4797	4793	4789	1'3426	3430	3434	3439	3443	3447	3452	3456	3460	3465	2
3	2236	2230	2224	2218	2212	2207	2201	2195	2189	2183	2'0139	0145	0152	0158	0165	0171	0177	0184	0190	0197	3
4	9648	9640	9632	9624	9617	9609	9601	9593	9585	9577	2'6852	6860	6869	6877	6886	6895	6903	6912	6921	6929	4
5	7060	7050	7040	7030	7021	7011	7001	6991	6982	6972	3'3564	3575	3586	3597	3608	3618	3629	3640	3651	3661	5
6	4472	4460	4448	4437	4425	4413	4401	4390	4378	4'4366	4'0277	0290	0303	0316	0329	0342	0355	0368	0381	0394	6
7	1884	1870	1856	1843	1829	1815	1802	1788	1774	5'1760	4'6990	7005	7020	7036	7051	7066	7081	7096	7111	7126	7
8	9296	9280	9264	9249	9233	9217	9202	9186	9170	5'9155	5'3703	3720	3738	3755	3772	3789	3807	3824	3841	3858	8
9	6708	6690	6672	6655	6637	6620	6602	6584	6567	6'6549	6'0416	0435	0455	0474	0494	0513	0532	0552	0571	0590	9
10	4120	4100	4080	4061	4041	4022	4002	3983	3963	7'3944	6'7129	7151	7172	7194	7215	7237	7258	7280	7301	7323	10
11	1531	1510	1489	1467	1446	1424	1402	1381	1359	8'1338	7'3842	3866	3889	3913	3937	3960	3984	4008	4031	4055	11
12	8943	8920	8897	8873	8850	8826	8803	8779	8756	8'8732	8'0555	0581	0606	0632	0658	0684	0710	0736	0762	0787	12
13	6355	6330	6305	6279	6254	6228	6203	6177	6152	9'6127	8'7268	7296	7324	7352	7380	7408	7436	7464	7492	7520	13
14	3767	3740	3713	3685	3658	3631	3603	3576	3548	10'3521	9'3981	4011	4041	4071	4101	4131	4161	4192	4222	4252	14
15	1179	1150	1121	1091	1062	1033	1003	974	945	11'0915	10'0693	0726	0758	0790	0823	0855	0887	0920	0952	0984	15
16	8591	8560	8529	8497	8466	8435	8404	8372	8341	11'8310	10'7406	7444	7475	7510	7544	7579	7613	7648	7682	7716	16
17	6003	5970	5937	5904	5870	5837	5804	5771	5737	12'5704	11'4119	4151	4193	4229	4266	4302	4339	4376	4412	4449	17
18	3415	3380	3345	3310	3274	3239	3204	3169	3134	13'3098	12'0832	0871	0910	0948	0987	1026	1065	1104	1142	1181	18
19	0827	0790	0753	0716	0679	0641	0604	0567	0530	14'0493	12'7545	7586	7627	7668	7709	7750	7791	7831	7872	7913	19
20	8239	8200	8161	8122	8083	8044	8005	7965	7926	14'7887	13'4258	4301	4344	4387	4430	4473	4516	4559	4603	4646	20
21	5651	5610	5569	5528	5487	5446	5405	5364	5323	15'5281	14'0971	1016	1061	1107	1152	1197	1242	1287	1333	1378	21
22	3063	3020	2977	2934	2891	2848	2805	2762	2719	16'2676	14'7684	7731	7779	7826	7873	7921	7968	8015	8063	8110	22
23	0475	0430	0385	0340	0295	0250	0205	0160	0115	17'0070	15'4397	4466	4496	4545	4595	4644	4694	4743	4793	4842	23
24	7887	7840	7793	7746	7699	7652	7605	7558	7511	17'7464	16'1109	1161	1213	1265	1316	1368	1420	1471	1523	1575	24
25	5299	5250	5201	5152	5103	5055	5006	4957	4908	18'4859	16'7822	7876	7930	7984	8038	8092	8146	8199	8253	8307	25
26	2711	2660	2609	2558	2508	2457	2406	2355	2304	19'2253	17'4535	4591	4647	4703	4759	4815	4871	4927	4983	5039	26
27	0123	0070	0017	9964	9912	9859	9806	9753	9700	19'9648	18'1248	1306	1365	1423	1481	1539	1597	1655	1713	1771	27
28	7535	7480	7425	7371	7316	7261	7206	7152	7097	20'7042	18'7961	8021	8082	8142	8202	8263	8323	8383	8444	8504	28
29	4947	4890	4833	4777	4722	4667	4612	4557	4503	21'4436	19'4674	4736	4799	4861	4924	4986	5049	5111	5174	5236	29
30	2359	2300	2241	2183	2124	2065	2007	1948	1889	22'1831	20'1387	1452	1516	1581	1645	1710	1775	1839	1904	1968	30
31	9771	9710	9649	9589	9528	9468	9407	9346	9286	22'9225	20'8100	8167	8233	8300	8367	8434	8500	8567	8634	8701	31
32	7182	7120	7057	6995	6932	6870	6807	6745	6682	23'6619	21'4813	4882	4951	5020	5088	5157	5226	5295	5364	5433	32
33	4594	4530	4466	4401	4337	4272	4207	4143	4078	24'4014	22'1526	1597	1668	1739	1810	1881	1952	2023	2094	2165	33
34	2006	1940	1874	1807	1741	1674	1608	1541	1475	25'1408	22'8238	8312	8385	8458	8532	8605	8678	8751	8824	8897	34
35	9418	9350	9282	9213	9145	9076	9008	8939	8871	25'8802	23'4951	5027	5102	5178	5253	5328	5404	5479	5554	5630	35
36	6830	6760	6690	6619	6549	6479	6408	6338	6267	26'6197	24'1664	1742	1819	1897	1975	2052	2130	2207	2285	2362	36
37	4242	4170	4098	4025	3953	3881	3808	3736	3664	27'3591	24'8377	8457	8537	8616	8696	8776	8855	8935	9015	9094	37
38	1654	1580	1506	1431	1357	1283	1209	1134	1060	28'0985	25'5090	5172	5254	5336	5418	5499	5581	5663	5745	5826	38
39	9066	8990	8914	8838	8761	8685	8609	8532	8456	28'8380	26'1803	1887	1971	2055	2139	2223	2307	2391	2475	2559	39
40	6478	6400	6322	6244	6165	6087	6009	5931	5852	29'5774	26'8516	8602	8688	8774	8861	8947	9033	9119	9205	9291	40
41	3890	3810	3730	3650	3570	3489	3409	3329	3249	30'3168	27'5229	5317	5405	5494	5582	5670	5759	5847	5935	6023	41
42	1302	1220	1138	1056	974	892	809	727	645	31'0563	28'1942	2032	2123	2213	2304	2394	2484	2575	2665	2756	42
43	8714	8630	8546	8462	8378	8294	8210	8126	8041	31'7957	28'8654	8747	8840	8933	9025	9119	9210	9303	9395	9488	43
44	6126	6040	5954	5868	5782	5696	5610	5524	5438	32'5352	29'5367	5462	5557	5652	5747	5841	5936	6031	6126	6221	44
45	3538	3450	3362	3274	3186	3098	3010	2922	2834	33'2746	30'2080	2177	2274	2371	2468	2565	2662	2759	2856	2952	45
46	0950	0860	0770	0680	0590	0500	0410	0320	0230	34'0140	30'8793	8892	8991	9091	9190	9289	9388	9487	9586	9685	46
47	8362	8270	8178	8086	7994	7903	7811	7719	7627	34'7535	31'5506	5607	5709	5810	5911	6012	6114	6215	6316	6417	47
48	5774	5680	5586	5492	5399	5305	5211	5117	5023	35'4929	32'2219	2322	2426	2529	2633	2736	2839	2943	3046	3149	48
49	3186	3090	2994	2899	2803	2707	2611	2515	2419	36'2323	32'8932	9037	9143	9249	9354	9460	9565	9671	9776	9882	49
50	0598	0500	0402	0305	0207	0109	0011	9913	9816	36'9718	33'5645	5753	5860	5968	6076	6183	6291	6399	6506	6614	50
51	8010	7910	7810	7711	7611	7511	7411	7312	7212	37'7112	34'2358	2468	2578	2687	2797	2907	3017	3127	3236	3346	51
52	5422	5320	5218	5117	5015	4913	4812	4710	4608	38'4506	34'9071	9193	9295	9407	9519	9631	9743	9855	9967	1008	52
53	2834	2730	2626	2523	2419	2316	2212	2108	2004	39'1901	35'5783	5898	6012	6126	6240	6354	6469	6583	6697	6811	53
54	0245	0140	0034	9929	9823	9718	9612	9506	9401	39'9295	36'2496	2613	2729	2845	2962	3078	3194	3311	3427	3543	54
55	7657	7550	7443	7335	7228	7120	7012	6905	6797	40'6689	36'9209	9328	9446	9565	9683	9802	9920	10039	10157	10275	55
56	5069	4960	4851	4741	4632	4522	4413	4303	4193	41'4084	37'5922	6243	6164	6284	6405	6525	6646	6766	6887	7007	56
57	2481	2370	2259	2147	2036	1924	1813	1701	1590	42'1478	38'2635	2758	2881	3004	3126	3249	3372	3494	3617	3740	57
58	9893	9780	9667	9553	9440	9326	9213	9100	8986	42'8872	38'9348	9473	9598	9723	9848	9973	10098	10222	10347	10472	58
59	7305	7190	7075	6959	6844	6729	6613	6498	6382	43'6267	39'6061	6188	6315	6442	6569	6696	6823	6950	7077	7204	59
60	4717	4600	4483	4366																	

TRAVERSE TABLES.

42°		COSINE.										SINE.										42°	
		20'	21'	22'	23'	24'	25'	26'	27'	28'	29'	20'	21'	22'	23'	24'	25'	26'	27'	28'	29'		
1	7392	7390	7388	7387	7385	7383	7381	7379	7377	7375	17375	6734	6737	6739	6741	6743	6745	6747	6749	6752	6754		
2	4785	4781	4777	4773	4769	4765	4761	4757	4753	4751	17479	13469	3473	3477	3482	3486	3490	3495	3499	3503	3508		
3	2177	2171	2165	2160	2154	2148	2142	2136	2130	2124	22124	20203	0210	0216	0223	0229	0236	0242	0248	0255	0261		
4	9570	9562	9554	9546	9538	9530	9523	9515	9507	29499	26939	6946	6955	6964	6972	6981	6989	6998	7006	7015	4		
5	6962	6952	6942	6933	6923	6913	6903	6893	6884	36874	33672	3683	3694	3704	3715	3726	3737	3747	3758	3769	5		
6	4354	4343	4331	4319	4307	4296	4284	4272	4260	44248	40407	0419	0432	0445	0458	0471	0484	0497	0510	0523	6		
7	1747	1733	1719	1706	1692	1678	1664	1651	1637	51623	47141	7156	7171	7186	7201	7216	7231	7246	7261	7276	7		
8	9139	9123	9108	9092	9076	9061	9045	9029	9014	58998	53875	3893	3910	3927	3944	3961	3979	3996	4013	4030	8		
9	6532	6514	6496	6479	6461	6443	6426	6408	6390	66373	60610	0629	0649	0668	0687	0707	0726	0745	0765	0784	9		
10	3924	3904	3885	3865	3846	3826	3806	3787	3767	73747	67344	7366	7387	7409	7430	7452	7473	7495	7516	7538	10		
11	1316	1295	1273	1252	1230	1209	1187	1165	1144	81122	74079	4102	4126	4150	4173	4197	4221	4244	4268	4291	11		
12	8709	8685	8662	8638	8615	8591	8568	8544	8520	88497	80813	0839	0865	0891	0916	0942	0968	0994	1019	1045	12		
13	6101	6076	6050	6025	5999	5974	5948	5923	5897	95872	87548	7576	7603	7631	7659	7687	7715	7743	7771	7799	13		
14	3494	3466	3439	3411	3384	3356	3329	3301	3274	103246	94248	4312	4342	4372	4402	4432	4462	4493	4523	4553	14		
15	0886	0857	0827	0798	0768	0739	0709	0680	0651	110621	101016	1049	1081	1113	1145	1178	1210	1242	1274	1306	15		
16	8278	8247	8216	8184	8153	8121	8090	8059	8027	117996	107751	7785	7820	7854	7888	7923	7957	7991	8026	8060	16		
17	5671	5637	5604	5571	5537	5504	5471	5437	5404	125371	114485	4522	4558	4595	4631	4668	4704	4741	4777	4814	17		
18	3063	3028	2993	2957	2922	2887	2851	2816	2781	132745	121220	1258	1297	1336	1374	1413	1452	1490	1529	1568	18		
19	0455	0418	0381	0344	0307	0269	0232	0195	0157	140120	127954	7995	8036	8077	8117	8158	8199	8240	8281	8321	19		
20	7848	7809	7770	7730	7691	7652	7613	7573	7534	147495	134689	4732	4775	4818	4860	4903	4946	4989	5032	5075	20		
21	5240	5199	5158	5117	5076	5034	4993	4952	4911	154869	141423	1468	1513	1558	1604	1649	1694	1739	1784	1829	21		
22	2633	2590	2546	2503	2460	2417	2374	2331	2287	162244	148157	8205	8252	8299	8347	8394	8441	8488	8535	8582	22		
23	0025	9980	9935	9890	9845	9800	9754	9709	9664	169619	154892	4941	4991	5040	5090	5139	5188	5238	5287	5336	23		
24	7417	7370	7323	7276	7229	7182	7135	7088	7041	176994	161626	1678	1729	1781	1833	1884	1936	1987	2039	2090	24		
25	4810	4761	4712	4663	4614	4565	4516	4467	4418	184368	168361	8414	8468	8522	8576	8629	8683	8737	8790	8844	25		
26	2202	2151	2100	2049	1998	1947	1896	1845	1794	191743	175095	5151	5207	5263	5319	5374	5430	5486	5542	5598	26		
27	9595	9542	9489	9436	9383	9330	9277	9224	9171	199118	181830	1888	1946	2004	2062	2120	2178	2236	2294	2351	27		
28	6987	6932	6877	6822	6767	6713	6658	6603	6548	206493	188564	8624	8684	8745	8805	8865	8925	8985	9045	9105	28		
29	4379	4323	4266	4209	4152	4095	4038	3981	3924	213867	195298	5361	5423	5485	5548	5610	5672	5735	5797	5859	29		
30	1772	1713	1654	1595	1537	1478	1419	1360	1301	221242	202033	2097	2162	2226	2291	2355	2420	2484	2548	2613	30		
31	9164	9103	9043	8982	8921	8860	8799	8739	8678	228617	208767	8834	8901	8967	9034	9100	9167	9233	9300	9366	31		
32	6557	6494	6431	6368	6306	6243	6180	6117	6054	235992	215502	5570	5639	5708	5777	5846	5914	5983	6052	6120	32		
33	3949	3884	3820	3755	3690	3626	3561	3496	3431	243366	222236	2307	2378	2449	2520	2591	2662	2732	2803	2874	33		
34	1341	1275	1208	1142	1075	1008	941	875	808	250741	228791	9044	9117	9190	9263	9336	9409	9482	9555	9628	34		
35	8734	8665	8597	8528	8459	8391	8322	8253	8185	258116	235805	5780	5855	5931	6006	6081	6156	6231	6306	6381	35		
36	6126	6056	5985	5915	5844	5773	5703	5632	5561	265491	242439	2517	2594	2672	2749	2826	2903	2981	3058	3135	36		
37	3519	3446	3374	3301	3228	3156	3083	3011	2938	272865	249174	9253	9333	9412	9492	9571	9651	9730	9810	9889	37		
38	0911	0837	0762	0688	0613	0538	0464	0389	0315	280240	255901	5990	6072	6153	6235	6317	6398	6480	6561	6643	38		
39	8303	8227	8151	8074	7998	7921	7845	7768	7691	287615	262643	2727	2810	2894	2978	3062	3145	3229	3313	3397	39		
40	5696	5617	5539	5461	5382	5304	5225	5147	5068	294990	269377	9463	9549	9635	9721	9807	9893	9979	0064	0150	40		
41	3088	3008	2927	2847	2767	2686	2606	2525	2445	302364	276112	6200	6288	6376	6464	6552	6640	6728	6816	6904	41		
42	0481	0398	0316	0234	0151	0069	9986	9904	9822	309739	282846	2936	3027	3117	3207	3297	3387	3478	3568	3658	42		
43	7873	7789	7704	7620	7536	7451	7367	7283	7198	317114	289580	9673	9765	9858	9950	0042	0135	0227	0319	0412	43		
44	5265	5179	5093	5007	4920	4834	4748	4661	4575	324488	296310	6409	6504	6599	6693	6788	6882	6977	7071	7165	44		
45	2658	2570	2481	2393	2305	2217	2128	2040	1952	331863	303049	3146	3243	3339	3436	3533	3629	3726	3823	3919	45		
46	0050	9960	9870	9780	9689	9599	9509	9419	9328	339238	309784	9883	9981	0080	0179	0278	0377	0475	0574	0673	46		
47	7443	7350	7258	7166	7074	6982	6890	6797	6705	346613	316518	6619	6720	6821	6922	7023	7124	7225	7326	7427	47		
48	4835	4741	4647	4553	4459	4364	4270	4176	4082	353987	323252	3356	3459	3562	3665	3768	3871	3974	4077	4180	48		
49	2227	2131	2035	1939	1843	1747	1651	1555	1458	361362	329987	0092	0198	0303	0408	0513	0619	0724	0829	0934	49		
50	9620	9522	9424	9326	9228	9130	9031	8933	8835	368737	336787	6829	6936	7044	7151	7259	7366	7473	7581	7688	50		
51	7012	6912	6812	6712	6612	6512	6412	6312	6212	376112	343456	3565	3675	3785	3894	4004	4113	4223	4332	4442	51		
52	4404	4303	4201	4099	3997	3895	3793	3691	3589	383486	350190	0302	0414	0526	0637	0749	0861	0972	1084	1195	52		
53	1797	1693	1589	1485	1381	1277	1173	1069	965	390861	356925	7039	37153	7266	7380	7494	7608	7722	7835	7949	53		
54	9189	9083	8978	8872	8766	8660	8554	8448	8342	398236	363659	3775	3891	4007	4123	4239	4355	4471	4587	4703	54		
55	6582	6474	6366	6258	6150	6043	5935	5827	5719	405611	370393	0512	0630	0748	0866	0984	1103	1221	1339	1457	55		
56	3974	3864	3755	3645	3535	3425	3315	3205	3095	412985	377128	7248	7369	7489	7609	7730	7850	7970	8090	8210	56		
57	1366	1255	1143	1031	920	808	696	584	472	420360	383862	3985	4107	4230	4352	4475	4597	4720	4842	4964	57		
58	8759	8645	8532	8418	8304	8190	8076																

TRAVERSE TABLES.

Table with columns for Cosine and Sine values, ranging from 42° to 47°. The table is organized into sections for Cosine and Sine, with degrees and minutes indicated in the headers.

TRAVERSE TABLES.

Table with columns for degrees (42° to 47°) and minutes (1' to 60'). It contains Cosine and Sine values for each degree. The table is organized into two main sections: Cosine (top) and Sine (bottom), with degree markers at the corners.

TRAVERSE TABLES.

42°	Cosine.										Sine.										42°
	50'	51'	52'	53'	54'	55'	56'	57'	58'	59'	50'	51'	52'	53'	54'	55'	56'	57'	58'	59'	
1	7333	7331	7329	7327	7325	7323	7321	7319	7318	7316	6799	6801	6803	6805	6807	6809	6811	6814	6816	6818	1
2	4667	4663	4659	4655	4651	4647	4643	4639	4635	4631	1'4631	1'3597	3602	3606	3610	3614	3619	3623	3627	3631	2
3	2000	1994	1988	1982	1976	1970	1964	1958	1953	2'1947	2'0396	0402	0409	0415	0422	0428	0434	0441	0447	0454	3
4	9333	9325	9318	9310	9302	9294	9286	9278	9270	2'9262	2'7195	7203	7212	7220	7229	7237	7246	7254	7263	7271	4
5	6667	6657	6647	6637	6627	6617	6607	6597	6588	3'6578	3'3993	4004	4015	4025	4036	4047	4057	4068	4079	4089	5
6	4000	3988	3976	3964	3953	3941	3929	3917	3905	4'3893	4'0792	0805	0818	0830	0843	0856	0869	0882	0894	0907	6
7	1333	1320	1306	1292	1278	1264	1250	1236	1223	5'1209	4'7591	7606	7621	7636	7650	7665	7680	7695	7710	7725	7
8	8667	8651	8635	8619	8603	8588	8572	8556	8540	5'8524	5'4389	4407	4424	4441	4458	4475	4492	4509	4526	4543	8
9	6000	5982	5964	5947	5929	5911	5893	5875	5858	6'5840	6'1188	1207	1227	1246	1265	1284	1303	1322	1342	1361	9
10	3333	3314	3294	3274	3254	3234	3215	3195	3175	7'3155	6'7987	8008	8029	8051	8072	8093	8115	8136	8157	8179	10
11	0667	0645	0623	0601	0580	0558	0536	0514	0493	8'0471	7'4785	4809	4832	4856	4879	4903	4926	4950	4973	4996	11
12	8000	7976	7953	7929	7905	7881	7858	7834	7810	8'7786	8'1584	1610	1635	1661	1687	1712	1738	1763	1789	1814	12
13	5333	5308	5282	5256	5231	5205	5179	5153	5128	9'5102	8'8383	8411	8438	8466	8494	8521	8549	8577	8604	8632	13
14	2667	2639	2611	2584	2556	2528	2501	2473	2445	10'2417	9'5182	5211	5241	5271	5301	5331	5361	5390	5420	5450	14
15	0000	9971	9941	9911	9881	9852	9822	9792	9763	10'9733	10'1980	2012	2044	2076	2108	2140	2172	2204	2236	2268	15
16	7334	7302	7270	7239	7207	7175	7143	7112	7080	11'7048	10'8779	8813	8847	8881	8915	8949	8984	9018	9052	9086	16
17	4667	4633	4600	4566	4532	4499	4465	4431	4398	12'4364	11'5578	5614	5650	5686	5723	5759	5795	5831	5867	5904	17
18	2000	1965	1929	1893	1858	1822	1786	1751	1715	13'1679	12'2376	2415	2453	2491	2530	2568	2606	2645	2683	2721	18
19	9334	9296	9258	9221	9183	9146	9108	9070	9033	13'8995	12'9175	9215	9256	9296	9337	9377	9418	9458	9499	9539	19
20	6667	6627	6588	6549	6509	6469	6429	6390	6350	14'6310	13'5974	6016	6059	6102	6144	6187	6229	6272	6315	6357	20
21	4000	3959	3917	3876	3834	3792	3751	3709	3668	15'3626	14'2772	2817	2862	2907	2951	2996	3041	3086	3130	3175	21
22	1334	1290	1247	1203	1159	1116	1072	1029	9885	16'0941	14'9571	9618	9665	9712	9759	9805	9852	9899	9946	9993	22
23	8667	8621	8576	8530	8485	8439	8394	8348	8303	16'8257	15'6370	6419	6468	6517	6566	6615	6664	6713	6762	6811	23
24	6000	5953	5905	5858	5810	5763	5715	5668	5620	17'5573	16'3168	3220	3271	3322	3373	3424	3475	3526	3577	3629	24
25	3334	3284	3235	3185	3136	3086	3037	2987	2938	18'2888	16'9967	020	074	0127	0180	0233	0287	0340	0393	0446	25
26	0667	0616	0564	0513	0461	0410	0358	0307	0255	19'0204	17'6766	6821	6877	6932	6987	7043	7098	7154	7209	7264	26
27	8000	7947	7893	7840	7787	7733	7680	7626	7573	19'7519	18'3564	3622	3680	3737	3795	3852	3910	3967	4025	4082	27
28	5334	5278	5223	5167	5112	5057	5001	4946	4890	20'4835	19'0363	0423	0482	0542	0602	0661	0721	0781	0840	0900	28
29	2667	2610	2552	2495	2437	2380	2323	2265	2208	21'2150	19'7162	7224	7285	7347	7409	7471	7533	7594	7656	7718	29
30	0000	9941	9882	9822	9763	9703	9644	9585	9525	21'9466	20'3960	4024	4088	4152	4216	4280	4344	4408	4472	4536	30
31	7334	7272	7211	7150	7088	7027	6965	6904	6843	22'6781	21'0759	0825	0891	0957	1023	1090	1156	1222	1288	1354	31
32	4667	4604	4540	4477	4414	4350	4287	4224	4160	23'4097	21'7558	7626	7694	7762	7831	7899	7967	8035	8103	8171	32
33	2000	1935	1870	1804	1739	1674	1608	1543	1478	24'1412	22'4356	4427	4497	4568	4638	4708	4778	4849	4919	4989	33
34	9334	9266	9199	9132	9065	8997	8930	8863	8795	24'8728	23'1155	1228	1300	1373	1445	1518	1590	1662	1735	1807	34
35	6667	6598	6529	6459	6390	6321	6251	6182	6113	25'6043	23'7954	8028	8103	8178	8252	8327	8401	8476	8550	8625	35
36	4000	3929	3858	3787	3715	3644	3573	3501	3430	26'3359	24'4753	4829	4906	4983	5060	5136	5213	5290	5366	5443	36
37	1334	1261	1187	1114	1041	0968	0894	0821	0748	27'0674	25'1551	1630	1709	1788	1867	1946	2024	2103	2182	2261	37
38	8667	8592	8517	8442	8366	8291	8216	8140	8065	27'7990	25'8350	8431	8512	8593	8674	8755	8836	8917	8998	9079	38
39	6000	5923	5846	5769	5692	5615	5537	5460	5383	28'5305	26'5149	5232	5315	5398	5481	5564	5647	5730	5813	5896	39
40	3334	3255	3176	3096	3017	2938	2859	2779	2700	29'2621	27'1947	2033	2118	2203	2288	2374	2459	2544	2629	2714	40
41	0667	0586	0505	0424	0343	0261	0180	0099	0018	29'9936	27'8746	8833	8921	9008	9096	9183	9270	9358	9445	9532	41
42	8000	7917	7834	7751	7668	7585	7502	7418	7335	30'7252	28'5545	5634	5724	5813	5903	5992	6082	6171	6261	6350	42
43	5334	5249	5164	5079	4993	4908	4823	4738	4653	31'4567	29'2343	2435	2527	2618	2710	2802	2893	2985	3076	3168	43
44	2667	2580	2493	2406	2319	2232	2145	2057	1970	32'1883	29'9142	9236	9330	9423	9517	9611	9705	9798	9892	9986	44
45	0001	9912	9822	9733	9644	9555	9466	9377	9288	32'9198	30'5941	6037	6133	6229	6324	6420	6516	6612	6708	6804	45
46	7334	7243	7152	7061	6970	6879	6787	6696	6605	33'6514	31'2739	2837	2936	3034	3132	3230	3328	3426	3523	3621	46
47	4667	4574	4481	4388	4295	4202	4109	4016	3923	34'3829	31'9538	9638	9738	9839	9939	0039	0139	0239	0339	0439	47
48	2001	1906	1811	1716	1621	1526	1430	1335	1240	35'1145	32'6337	6439	6541	6643	6746	6848	6951	7053	7155	7257	48
49	9334	9237	9140	9043	8946	8849	8752	8655	8558	35'8461	33'3135	3240	3344	3449	3553	3658	3762	3866	3971	4075	49
50	6667	6568	6469	6370	6271	6172	6073	5974	5875	36'5776	33'9934	0041	0147	0254	0360	0467	0573	0680	0786	0893	50
51	4001	3900	3799	3698	3597	3496	3395	3294	3193	37'3092	34'6733	6841	6950	7059	7168	7276	7385	7494	7602	7711	51
52	1334	1231	1128	1025	0922	0819	0716	0613	0510	38'0407	35'3531	3642	3753	3864	3975	4086	4196	4307	4418	4529	52
53	8667	8562	8458	8353	8248	8143	8038	7933	7828	38'7723	36'0330	0443	0556	0669	0782	0895	1008	1121	1234	1346	53
54	6001	5894	5787	5680	5573	5466	5359	5252	5145	39'5038	36'7129	7244	7359	7474	7589	7704	7819	7934	8049	8164	54
55	3334	3225	3116	3007	2899	2790	2681	2572	2463	40'2354	37'3927	4045	4162	4279	4396	4514	4631	4748	4865	4982	55
56	0667	0557	0446	0335	0224	0113	0002	9891	9780	40'9669	38'0726	0846	0965	1084	1204	1323	1442	1562	1681	1800	56
57	8001	7888	7775	7662	7549	7437	7324	7211	7098	41'6985	38'7825	7646	7768	7889	8011	8132	8254	8375	8496	8618	57
58	5334	5219	5105	4990	4875	4760	4645	4530	4415	42'4300	39'4323	4447	4571	4695	4818	4942	5065	5189	5312	5436	58
59	2667	2551	2434	2317	2200	2083	1967	1850	1733	43'1616	40'1122	1248	1374	1500	1625	1751	1877	2002	2128	2254	59
60	0001	9882	9763	9645	952																

TRAVERSE TABLES.

Table with columns for degrees (43° to 46°), cosine, sine, and minutes. It contains numerical data for trigonometric functions across various angles and minutes.

TRAVERSE TABLES.

43°	COSINE.										SINE.										43°
	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	
1	7294	7292	7290	7288	7286	7284	7282	7280	7278	7276	6841	6843	6845	6848	6850	6852	6854	6856	6858	6860	1
2	4587	4583	4579	4575	4571	4567	4563	4559	4555	1'4551	1'3682	3687	3691	3695	3699	3704	3708	3712	3716	3721	2
3	1881	1875	1869	1863	1857	1851	1845	1839	1833	2'1827	2'0524	0530	0536	0543	0549	0555	0562	0568	0575	0581	3
4	9175	9167	9159	9151	9143	9135	9127	9119	9111	2'9103	2'7365	7373	7382	7390	7399	7407	7416	7424	7433	7441	4
5	6468	6458	6448	6438	6429	6419	6409	6399	6389	3'6379	3'4206	4217	4227	4238	4249	4259	4270	4280	4291	4302	5
6	3762	3750	3738	3726	3714	3702	3690	3678	3666	4'3654	4'1047	1060	1073	1086	1098	1111	1124	1136	1149	1162	6
7	1056	1042	1028	1014	1000	9986	9972	9958	9944	5'0930	4'7889	7903	7918	7933	7948	7963	7978	7992	8007	8022	7
8	8349	8333	8317	8302	8286	8270	8254	8238	8222	5'8206	5'4730	4747	4764	4781	4798	4815	4832	4849	4865	4882	8
9	5643	5625	5607	5589	5571	5553	5535	5517	5500	6'5482	6'1571	1590	1609	1628	1647	1666	1686	1705	1724	1743	9
10	2937	2917	2897	2877	2857	2837	2817	2797	2777	7'2757	6'8412	8434	8455	8476	8497	8518	8539	8561	8582	8603	10
11	0230	0208	0187	0165	0143	0121	0099	0077	0055	8'0033	7'5254	5277	5300	5324	5347	5370	5393	5417	5440	5463	11
12	7524	7500	7476	7452	7428	7405	7381	7357	7333	8'7309	8'2095	2120	2146	2171	2197	2222	2247	2273	2298	2324	12
13	4818	4792	4766	4740	4714	4688	4662	4636	4610	9'4585	8'9396	8964	8991	9019	9046	9074	9101	9129	9156	9184	13
14	2111	2083	2056	2028	2000	1972	1944	1916	1888	10'1860	9'5777	5807	5837	5866	5896	5926	5955	5985	6015	6044	14
15	9405	9375	9345	9315	9286	9256	9226	9196	9166	10'9136	10'2618	2650	2682	2714	2746	2777	2809	2841	2873	2905	15
16	6699	6667	6635	6603	6571	6539	6507	6476	6444	11'6412	10'9460	9494	9528	9561	9595	9629	9663	9697	9731	9765	16
17	3992	3959	3925	3891	3857	3823	3789	3755	3721	12'3687	11'6301	6337	6373	6409	6445	6481	6517	6553	6589	6625	17
18	1286	1250	1214	1179	1143	1107	1071	1035	9999	13'0963	12'3142	3180	3218	3257	3295	3333	3371	3409	3447	3485	18
19	8580	8542	8504	8466	8428	8390	8353	8315	8277	13'8239	12'9983	9024	9064	9104	9145	9185	9225	9265	9305	9345	19
20	5873	5834	5794	5754	5714	5674	5634	5594	5555	14'5515	13'6825	6867	6909	6952	6994	7037	7079	7121	7164	7206	20
21	3167	3125	3083	3042	3000	2958	2916	2874	2832	15'2790	14'3666	3710	3755	3799	3844	3888	3933	3977	4022	4066	21
22	0461	0417	0373	0329	0285	0242	0198	0154	0110	16'0066	15'0507	0554	0600	0647	0694	0740	0787	0833	0880	0927	22
23	7754	7709	7663	7617	7571	7525	7479	7433	7388	16'7342	15'7348	7397	7446	7495	7543	7592	7641	7690	7738	7787	23
24	5048	5000	4952	4905	4857	4809	4761	4713	4665	17'4618	16'4189	4240	4291	4342	4393	4444	4495	4546	4596	4647	24
25	2342	2292	2242	2192	2143	2093	2043	1993	1943	18'1893	17'1031	1084	1137	1190	1243	1296	1349	1402	1455	1508	25
26	9635	9584	9532	9480	9428	9376	9325	9273	9221	18'9169	17'7872	7927	7982	8037	8092	8148	8203	8258	8313	8368	26
27	6929	6875	6822	6768	6714	6660	6606	6552	6499	19'6445	18'4713	4770	4828	4885	4942	4999	5057	5114	5171	5228	27
28	4223	4167	4111	4055	4000	3944	3888	3832	3776	20'3720	19'1554	1614	1673	1733	1792	1851	1911	1970	2029	2088	28
29	1516	1459	1401	1343	1285	1228	1170	1112	1054	21'0996	19'8396	8457	8519	8580	8642	8703	8764	8826	8887	8949	29
30	8810	8750	8691	8631	8571	8511	8451	8392	8332	21'8272	20'5237	5301	5364	5428	5491	5555	5618	5682	5746	5809	30
31	6104	6042	5980	5919	5857	5795	5733	5671	5610	22'5548	21'2078	2144	2210	2275	2341	2407	2472	2538	2604	2669	31
32	3397	3334	3270	3206	3142	3079	3015	2951	2887	23'2823	21'8919	8987	9055	9123	9191	9259	9326	9394	9462	9530	32
33	0691	0625	0560	0494	0428	0362	0297	0231	0165	24'0099	22'5761	5831	5901	5971	6040	6110	6180	6250	6320	6390	33
34	7985	7917	7849	7781	7714	7646	7578	7511	7443	24'7375	23'2602	2674	2746	2818	2890	2962	3034	3106	3178	3250	34
35	5278	5209	5139	5069	5000	4930	4860	4790	4720	25'4651	23'9443	9517	9591	9666	9740	9814	9888	9962	0036	0111	35
36	2572	2500	2429	2357	2285	2214	2142	2070	1998	26'1926	24'6284	6361	6437	6513	6590	6666	6742	6818	6895	6971	36
37	9866	9792	9718	9645	9571	9497	9423	9350	9276	26'9202	25'3125	3204	3282	3361	3439	3518	3596	3674	3753	3831	37
38	7159	7084	7008	6932	6857	6781	6705	6629	6554	27'6478	25'9967	0047	0128	0208	0289	0370	0450	0531	0611	0691	38
39	4453	4375	4298	4220	4142	4065	3987	3909	3831	28'3754	26'6808	6891	6973	7056	7139	7221	7304	7387	7469	7552	39
40	1747	1667	1587	1508	1428	1348	1269	1189	1109	29'1029	27'3649	3734	3819	3904	3988	4073	4158	4243	4327	4412	40
41	9040	8959	8877	8795	8714	8632	8550	8469	8387	29'8305	28'0490	0577	0664	0751	0838	0925	1012	1099	1186	1272	41
42	6334	6250	6167	6083	6000	5916	5832	5748	5665	30'5581	28'7332	7421	7510	7599	7688	7777	7866	7955	8044	8133	42
43	3628	3542	3456	3371	3285	3200	3114	3028	2942	31'2856	29'4173	4264	4355	4446	4538	4629	4720	4811	4902	4993	43
44	0921	0834	0746	0659	0571	0483	0396	0308	2220	32'0132	30'1014	1107	1201	1294	1387	1481	1574	1667	1760	1853	44
45	8215	8125	8036	7946	7857	7767	7677	7587	7498	32'7408	30'7855	7951	8046	8142	8237	8332	8428	8523	8618	8714	45
46	5509	5417	5326	5234	5142	5051	4959	4867	4775	33'4684	31'4697	4794	4892	4989	5087	5184	5282	5379	5476	5574	46
47	2802	2709	2615	2522	2428	2334	2241	2147	2053	34'1959	32'1538	1637	1737	1837	1936	2036	2136	2235	2335	2434	47
48	0096	0000	9905	9809	9714	9618	9522	9427	9331	34'9235	32'8379	8481	8583	8684	8786	8888	8990	9091	9193	9294	48
49	7390	7292	7195	7097	6999	6902	6804	6706	6609	35'6511	33'5220	5324	5428	5532	5636	5740	5843	5947	6051	6155	49
50	4683	4584	4484	4385	4285	4186	4086	3986	3886	36'3787	34'2061	2168	2274	2380	2486	2592	2697	2803	2909	3015	50
51	1977	1876	1774	1672	1571	1469	1368	1266	1164	37'1062	34'8903	9011	9119	9227	9335	9443	9551	9659	9767	9875	51
52	9271	9167	9064	8960	8857	8753	8649	8546	8442	37'8338	35'5744	5854	5964	6075	6185	6295	6405	6515	6626	6736	52
53	6564	6459	6353	6248	6142	6037	5931	5825	5720	38'5614	36'2585	2698	2810	2922	3035	3147	3259	3371	3484	3596	53
54	3858	3751	3643	3536	3428	3320	3213	3105	2997	39'2890	36'9426	9541	9655	9770	9884	9999	1113	0228	0342	0456	54
55	1152	1042	0933	0823	0714	0604	0494	0385	0275	40'0165	37'6268	6384	6501	6618	6734	6851	6967	7084	7200	7317	55
56	8445	8334	8222	8111	7999	7888	7776	7664	7553	40'7441	38'3109	3228	3346	3465	3584	3702	3821	3940	4058	4177	56
57	5739	5626	5512	5399	5285	5171	5058	4944	4830	41'4717	38'9950	0071	0192	0313	0434	0554	0675	0796	0916	1037	57
58	3033	2917	2802	2686	2571	2455	2340	2224	2108	42'1992	39'6791	6914	7037	7160	7283	7406	7529	7652	7775	7897	58
59	0326	0209	0091	9974	9856	9739	9621	9504	9386	42'9268	40'3633	3758	3883	4008	4133	4258	4383	4508	4633		

TRAVERSE TABLES.

Table with 43° at top left and bottom right. Columns labeled COSINE and SINE. Rows numbered 1 to 100. Values range from 0 to 1000.

TRAVERSE TABLES.

43°		COSINE.										SINE.										43°	
		30'	31'	32'	33'	34'	35'	36'	37'	38'	39'	30'	31'	32'	33'	34'	35'	36'	37'	38'	39'		
1	7254	7252	7250	7248	7246	7244	7242	7240	7238	7236	6884	6886	6888	6890	6892	6894	6896	6898	6900	6902	1		
2	4507	4503	4499	4495	4491	4487	4483	4479	4475	4471	13767	3771	3776	3780	3784	3788	3792	3797	3801	3805	2		
3	1761	1755	1749	1743	1737	1731	1725	1719	1713	21707	20651	0657	0663	0670	0676	0682	0689	0695	0701	0708	3		
4	9015	9007	8999	8991	8983	8975	8967	8959	8951	28943	27534	7543	7551	7559	7568	7576	7585	7593	7602	7610	4		
5	6269	6259	6249	6239	6229	6219	6209	6199	6189	36178	34418	4428	4439	4449	4460	4470	4481	4492	4502	4513	5		
6	3522	3510	3498	3486	3474	3462	3450	3438	3426	43414	41301	1314	1327	1339	1352	1365	1377	1390	1402	1415	6		
7	0776	0762	0748	0734	0720	0706	0692	0678	0664	50650	48185	8200	8214	8229	8244	8259	8273	8288	8303	8318	7		
8	8030	8014	7998	7982	7966	7950	7934	7918	7902	57886	55068	5085	5102	5119	5136	5153	5170	5186	5203	5220	8		
9	5284	5266	5248	5230	5212	5194	5175	5157	5139	65121	61952	1971	1990	2009	2028	2047	2066	2085	2104	2123	9		
10	2537	2517	2497	2477	2457	2437	2417	2397	2377	72357	68835	8857	8878	8899	8920	8941	8962	8983	9004	9025	10		
11	9791	9769	9747	9725	9703	9681	9659	9637	9615	79593	75719	5742	5765	5789	5812	5835	5858	5881	5904	5928	11		
12	7045	7021	6997	6973	6949	6925	6901	6877	6852	86828	82603	2628	2653	2678	2704	2729	2754	2780	2805	2830	12		
13	4299	4273	4247	4221	4194	4168	4142	4116	4090	94064	89486	9514	9541	9568	9596	9623	9651	9678	9705	9733	13		
14	1552	1524	1496	1468	1440	1412	1384	1356	1328	101300	96370	6399	6429	6458	6488	6517	6547	6576	6606	6635	14		
15	8806	8776	8746	8716	8686	8656	8626	8596	8566	108535	103253	3285	3316	3348	3380	3411	3443	3475	3506	3539	15		
16	6060	6028	5996	5964	5932	5900	5868	5835	5803	115771	110137	0170	0204	0238	0272	0305	0339	0373	0407	0440	16		
17	3314	3280	3246	3211	3177	3143	3109	3075	3041	123007	117020	7056	7092	7128	7164	7200	7235	7271	7307	7343	17		
18	0567	0531	0495	0459	0423	0387	0351	0315	0279	130243	123904	3942	3980	4018	4056	4094	4132	4169	4207	4245	18		
19	7821	7783	7745	7707	7669	7631	7593	7555	7516	137478	130787	0827	0868	0908	0948	0988	1028	1068	1108	1148	19		
20	5075	5035	4995	4955	4915	4874	4834	4794	4754	144714	137671	7713	7755	7797	7840	7882	7924	7966	8008	8050	20		
21	2329	2287	2244	2202	2160	2118	2076	2034	1992	151950	144554	4599	4643	4687	4732	4776	4820	4864	4909	4953	21		
22	9582	9538	9494	9450	9406	9362	9318	9274	9230	159185	151438	1484	1531	1577	1624	1670	1716	1763	1809	1855	22		
23	6836	6790	6744	6698	6652	6606	6560	6513	6467	166421	158322	8370	8419	8467	8516	8564	8612	8661	8709	8758	23		
24	4090	4042	3994	3946	3897	3849	3801	3753	3705	173657	165205	5256	5306	5357	5408	5458	5509	5559	5610	5660	24		
25	1344	1294	1243	1193	1143	1093	1043	0993	0943	180892	172089	2141	2194	2247	2300	2352	2405	2458	2510	2563	25		
26	8597	8545	8493	8441	8389	8337	8285	8233	8180	188128	178972	9027	9082	9137	9192	9246	9301	9356	9411	9465	26		
27	5851	5797	5743	5689	5635	5581	5526	5472	5418	195364	185856	5913	5970	6027	6083	6140	6197	6254	6311	6368	27		
28	3105	3049	2993	2937	2880	2824	2768	2712	2656	202600	192739	2798	2857	2916	2975	3034	3093	3152	3211	3270	28		
29	0359	0300	0242	0184	0126	0068	0010	9952	9893	209835	199623	6984	7045	7106	7167	7229	7290	7351	7412	7473	29		
30	7612	7552	7492	7432	7372	7312	7252	7191	7131	217071	206506	6570	6633	6696	6759	6823	6886	6949	7012	7075	30		
31	4866	4804	4742	4680	4618	4555	4493	4431	4369	224307	213390	3455	3521	3586	3651	3717	3782	3847	3913	3978	31		
32	2120	2056	1992	1927	1863	1799	1735	1671	1607	231542	220273	0341	0408	0476	0543	0611	0678	0746	0813	0880	32		
33	9374	9307	9241	9175	9109	9043	8977	8910	8844	238778	227157	7227	7296	7366	7435	7505	7574	7644	7713	7783	33		
34	6627	6559	6491	6423	6355	6287	6218	6150	6082	246014	234041	4112	4184	4256	4327	4399	4471	4542	4614	4685	34		
35	3881	3811	3741	3671	3601	3530	3460	3390	3320	253249	240924	0998	1072	1146	1219	1293	1367	1441	1514	1588	35		
36	1135	1063	0991	0918	0846	0774	0702	0630	0557	260485	247809	7884	7960	8035	8111	8187	8263	8339	8415	8490	36		
37	8389	8314	8240	8166	8092	8018	7944	7869	7795	267721	254691	4769	4847	4925	5003	5081	5159	5237	5315	5393	37		
38	5642	5566	5490	5414	5338	5262	5185	5109	5033	274957	261575	1655	1735	1815	1895	1975	2055	2135	2215	2295	38		
39	2896	2818	2740	2662	2583	2505	2427	2349	2270	282192	268458	8541	8623	8705	8787	8869	8952	9034	9116	9198	39		
40	0150	0070	9990	9909	9829	9749	9669	9588	9508	289428	275342	5426	5511	5595	5679	5764	5848	5932	6016	6100	40		
41	7404	7321	7239	7157	7075	6993	6910	6828	6746	296664	282225	2312	2398	2485	2571	2658	2744	2830	2917	3003	41		
42	4657	4573	4489	4405	4321	4236	4152	4068	3984	303899	289109	9198	9286	9375	9463	9552	9640	9729	9817	9906	42		
43	1911	1825	1739	1653	1566	1480	1394	1308	1221	311135	295992	6083	6174	6265	6355	6446	6536	6627	6718	6808	43		
44	9165	9077	8988	8900	8812	8724	8636	8547	8459	318371	302876	2969	3062	3154	3247	3340	3433	3525	3618	3711	44		
45	6418	6328	6238	6148	6058	5968	5877	5787	5697	325606	309260	9854	9949	0044	0139	0234	0329	0424	0518	0613	45		
46	3672	3580	3488	3396	3304	3211	3119	3027	2934	332842	316643	6740	6837	6934	7031	7128	7225	7322	7419	7516	46		
47	0926	0832	0738	0643	0549	0455	0361	0266	0172	340078	323527	3626	3725	3824	3923	4022	4121	4220	4319	4418	47		
48	8180	8084	7987	7891	7795	7699	7603	7506	7410	347314	330410	0511	0613	0714	0815	0916	1017	1118	1220	1321	48		
49	5433	5335	5237	5139	5041	4942	4844	4746	4648	354549	337294	7397	7500	7604	7707	7810	7914	8017	8120	8223	49		
50	2687	2587	2487	2387	2286	2186	2086	1986	1885	361785	344712	4283	4388	4494	4599	4704	4810	4915	5020	5126	50		
51	9941	9839	9737	9634	9532	9430	9328	9225	9123	369021	351061	1168	1276	1384	1491	1599	1706	1813	1921	2028	51		
52	7195	7091	6986	6882	6778	6674	6569	6465	6361	376256	357944	8054	8164	8273	8383	8493	8602	8712	8821	8931	52		
53	4448	4342	4236	4130	4024	3917	3811	3705	3598	383492	364828	4940	5052	5163	5275	5387	5498	5610	5722	5833	53		
54	1702	1594	1486	1378	1269	1161	1053	0944	0836	390728	371711	1825	1939	2053	2167	2281	2395	2508	2622	2736	54		
55	8956	8846	8736	8625	8515	8405	8295	8184	8074	397963	378595	8711	8827	8943	9059	9175	9291	9407	9522	9638	55		
56	6210	6097	5985	5873	5761	5649	5536	5424	5311	405199	385749	5597	5715	5833	5951	6069	6187	6305	6423	6541	56		
57	3463	3349	3235	3121	3007	2892	2778	2664	2549	412435	392362	2482	2603	2723	2843	2963	3083	3203	3323	3443	57		
58	0717	0601	0485	0369	0252	0136	0020	9903	9787	419670	399246	9368	9490	9613	9735	9857	9979	102	0224	0346	58		
59	7971	7853	7735	7616	7498	7380	7261	7143	7025	426906	406129	6254	6378	6503	6627	6751	6876	7000	7124	7248	59		
60	5225	5104	4984	4864	4744	4623	4503	4383	4262	434142	413133	3139	3266	3392	3519	3645							

TRAVERSE TABLES.

43°	COSINE.									SINE.									43°	
	44'	41'	42'	43'	44'	45'	46'	47'	48'	49'	40'	41'	42'	43'	44'	45'	46'	47'		48'
1	7234	7232	7230	7228	7226	7224	7222	7220	7218	7216	6905	6907	6909	6911	6913	6915	6917	6919	6921	6924
2	4467	4463	4459	4455	4451	4447	4443	4439	4435	4431	13809	3813	3818	3822	3826	3830	3834	3839	3843	3847
3	1701	1695	1689	1683	1677	1671	1665	1659	1653	21647	20714	0720	0726	0733	0739	0745	0752	0758	0764	0771
4	8935	8927	8919	8911	8903	8895	8887	8878	8870	28862	27618	7627	7635	7644	7652	7661	7669	7677	7686	7694
5	6168	6158	6148	6138	6128	6118	6108	6098	6088	36078	34523	4534	4544	4555	4565	4576	4586	4597	4607	4618
6	3402	3390	3378	3366	3354	3342	3330	3318	3306	43294	41428	1440	1453	1466	1478	1491	1503	1516	1529	1541
7	0636	0622	0608	0594	0580	0565	0551	0537	0523	50509	48332	8347	8362	8376	8391	8406	8421	8435	8450	8465
8	7870	7853	7837	7821	7805	7789	7773	7757	7741	57725	55237	5254	5271	5287	5304	5321	5338	5355	5371	5388
9	5103	5085	5067	5049	5031	5013	4995	4977	4958	64940	62142	2160	2179	2198	2217	2236	2255	2274	2293	2312
10	2337	2317	2297	2277	2257	2236	2216	2196	2176	72156	69046	9067	9088	9109	9130	9151	9171	9193	9214	9235
11	9571	9548	9526	9504	9482	9460	9438	9416	9394	79371	75951	5974	5997	6020	6043	6066	6090	6113	6136	6159
12	6804	6780	6756	6732	6708	6684	6660	6635	6611	86587	82855	2881	2906	2931	2956	2982	3007	3032	3057	3082
13	4038	4012	3986	3960	3933	3907	3881	3855	3829	93803	87976	8787	9815	9842	9869	9897	9924	9951	9979	0006
14	1272	1244	1215	1187	1159	1131	1103	1075	1046	101018	96665	6694	6724	6753	6782	6812	6841	6871	6900	6929
15	8505	8475	8445	8415	8385	8355	8324	8294	8264	108234	103569	3601	3632	3664	3695	3727	3758	3790	3821	3853
16	5739	5707	5675	5643	5610	5578	5546	5514	5482	115449	110474	0508	0541	0575	0608	0642	0676	0709	0743	0776
17	2973	2939	2904	2870	2836	2802	2768	2733	2699	122665	117378	7414	7450	7486	7521	7557	7593	7629	7664	7700
18	0206	0170	0134	0098	0062	0026	9989	9953	9917	129881	124283	4321	4359	4397	4435	4472	4510	4548	4586	4624
19	7440	7402	7364	7326	7287	7249	7211	7173	7134	137096	131188	1228	1268	1308	1348	1387	1427	1467	1507	1547
20	4674	4634	4593	4553	4513	4473	4433	4392	4352	144312	138092	8134	8176	8219	8261	8303	8345	8387	8429	8471
21	1907	1865	1823	1781	1739	1696	1654	1612	1570	151527	144997	5041	5085	5129	5174	5218	5262	5306	5350	5394
22	9141	9097	9053	9009	8964	8920	8876	8832	8787	158743	151902	1948	1994	2040	2087	2133	2179	2225	2272	2318
23	6375	6329	6282	6236	6190	6144	6097	6051	6005	165959	158806	8855	8903	8951	9000	9048	9096	9145	9193	9241
24	3609	3560	3512	3464	3416	3367	3319	3271	3222	173174	165711	5761	5812	5862	5913	5963	6014	6064	6114	6165
25	0842	0792	0742	0692	0641	0591	0541	0490	0440	180390	172615	2668	2721	2773	2826	2878	2931	2983	3036	3088
26	8076	8024	7971	7919	7867	7815	7762	7710	7658	187605	179520	9575	9629	9684	9739	9793	9848	9903	9957	0012
27	5310	5255	5201	5147	5093	5038	4984	4930	4875	194821	186425	6481	6538	6595	6652	6709	6765	6822	6879	6935
28	2543	2487	2431	2375	2318	2262	2206	2149	2093	202036	193329	3388	3447	3506	3565	3624	3682	3741	3800	3859
29	9777	9719	9660	9602	9544	9486	9427	9369	9310	209252	200234	0295	0356	0417	0478	0539	0600	0661	0722	0782
30	7011	6950	6890	6830	6770	6709	6649	6588	6528	216468	207139	7202	7265	7328	7391	7454	7517	7580	7643	7706
31	4244	4182	4120	4057	3995	3933	3870	3808	3746	223683	214043	4108	4174	4239	4304	4369	4434	4499	4564	4629
32	1478	1414	1349	1285	1221	1156	1092	1028	9643	230899	220948	1015	1082	1150	1217	1284	1351	1419	1486	1553
33	8712	8645	8579	8513	8446	8380	8314	8247	8181	238114	227852	7922	7991	8061	8130	8199	8269	8338	8407	8477
34	5945	5877	5809	5740	5672	5604	5535	5467	5398	245330	234757	4829	4900	4972	5043	5114	5186	5257	5329	5400
35	3179	3109	3038	2968	2898	2827	2757	2687	2616	252546	241662	1735	1809	1882	1956	2030	2103	2177	2250	2324
36	0413	0341	0268	0196	0123	0051	9979	9906	9834	259761	248566	8642	8718	8793	8869	8945	9020	9096	9172	9247
37	7647	7572	7498	7423	7349	7275	7200	7126	7051	266977	255471	5549	5626	5704	5782	5860	5938	6015	6093	6171
38	4880	4804	4727	4651	4575	4498	4422	4345	4269	274192	262375	2545	2535	2615	2695	2775	2855	2935	3014	3094
39	2114	2036	1957	1879	1800	1722	1643	1565	1486	281408	269280	9362	9444	9526	9608	9690	9772	9854	9936	0018
40	9348	9267	9187	9106	9026	8946	8865	8785	8704	288624	276185	6269	6353	6437	6521	6605	6689	6773	6857	6941
41	6581	6499	6417	6334	6252	6169	6087	6004	5922	295839	283809	3176	3262	3348	3434	3520	3607	3693	3779	3865
42	3815	3731	3646	3562	3477	3393	3308	3224	3139	303055	290994	9082	0171	0259	0347	0436	0524	0612	0700	0788
43	1049	0962	0876	0789	0703	0617	0530	0443	0357	310270	296899	6989	7079	7170	7260	7351	7441	7531	7622	7712
44	8282	8194	8106	8017	7929	7840	7752	7663	7574	317486	303803	3896	3986	4081	4173	4266	4358	4451	4543	4635
45	5516	5426	5335	5245	5154	5064	4973	4883	4792	324702	310708	0802	0897	0992	1096	1181	1275	1370	1464	1559
46	2750	2657	2565	2472	2380	2287	2195	2102	2010	331917	317612	7709	7806	7903	7999	8096	8193	8289	8386	8482
47	9983	9889	9795	9700	9606	9511	9417	9322	9227	339133	324517	4616	4715	4814	4912	5011	5110	5209	5307	5406
48	7217	7121	7024	6928	6831	6735	6638	6542	6445	346348	331422	1523	1624	1724	1825	1926	2027	2128	2229	2329
49	4451	4352	4254	4155	4057	3958	3860	3761	3662	353564	338326	8429	8532	8635	8738	8841	8944	9047	9150	9253
50	1685	1584	1484	1383	1283	1182	1081	981	880	360779	345231	5336	5441	5546	5651	5757	5862	5967	6072	6177
51	8918	8816	8713	8611	8508	8406	8303	8200	8098	367995	352135	2243	2350	2457	2564	2672	2779	2886	2993	3100
52	6152	6047	5943	5838	5734	5629	5525	5420	5315	375211	359040	9149	9259	9368	9478	9587	9696	9805	9914	0024
53	3386	3279	3173	3066	2960	2853	2746	2640	2533	382426	365945	6056	6168	6279	6391	6502	6613	6725	6836	6947
54	0619	0511	0402	0294	0185	0077	9968	9859	9751	389642	372849	2963	3076	3190	3304	3417	3531	3644	3757	3871
55	7853	7742	7632	7521	7411	7300	7													

TRAVERSE TABLES.

Table with 10 columns (degrees 43 to 46) and 100 rows of trigonometric values (SINE and COSINE).

TRAVERSE TABLES.

Table with columns for angles (44° to 45°) and rows for Cosine and Sine values. The table is organized into two main sections: Cosine (left) and Sine (right), with a central column for angles. Each section contains a grid of numerical values corresponding to specific angles and minutes.

TRAVERSE TABLES.

44°	COSINE.										SINE.										44°
	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	10'	11'	12'	13'	14'	15'	16'	17'	18'	19'	
1	7173	7171	7169	7167	7165	7163	7161	7159	7157	7155	6967	6970	6972	6974	6976	6978	6980	6982	6984	6986	1
2	4346	4342	4338	4334	4330	4326	4322	4318	4314	4310	1'3935	3939	3943	3947	3952	3956	3960	3964	3968	3972	2
3	1519	1513	1507	1501	1495	1489	1483	1477	1471	2'1465	2'0902	0909	0915	0921	0927	0934	0940	0946	0952	0959	3
4	8693	8695	8676	8668	8660	8652	8644	8636	8628	2'8620	2'7870	7878	7887	7895	7903	7912	7920	7928	7937	7945	4
5	5866	5856	5846	5835	5825	5815	5805	5795	5785	3'5774	3'4837	4848	4858	4869	4879	4890	4900	4910	4921	4931	5
6	3039	3027	3015	3002	2990	2978	2966	2954	2942	4'2929	4'1805	1817	1830	1842	1855	1867	1880	1892	1905	1917	6
7	0212	0198	0184	0170	0155	0141	0127	0113	0098	5'0084	4'8772	8787	8802	8816	8831	8845	8860	8874	8889	8904	7
8	7385	7369	7353	7337	7320	7304	7288	7272	7255	5'7239	5'5740	5757	5773	5790	5807	5823	5840	5857	5873	5890	8
9	4558	4540	4522	4504	4485	4467	4449	4431	4412	6'4394	6'2707	2726	2745	2764	2782	2801	2820	2839	2857	2876	9
10	1732	1711	1691	1671	1650	1630	1610	1590	1569	7'1549	6'9675	9696	9717	9737	9758	9779	9800	9821	9842	9862	10
11	8905	8882	8860	8838	8816	8793	8771	8749	8726	7'8704	7'6642	6665	6688	6711	6734	6757	6780	6803	6826	6849	11
12	6078	6054	6029	6005	5981	5956	5932	5908	5883	8'5859	8'3610	3635	3660	3685	3710	3735	3760	3785	3810	3835	12
13	3251	3225	3198	3172	3146	3119	3093	3066	3040	9'3014	9'0577	0604	0631	0659	0686	0713	0740	0767	0794	0821	13
14	0424	0396	0367	0339	0311	0282	0254	0225	0197	10'0169	9'7545	7574	7603	7632	7661	7691	7720	7749	7778	7807	14
15	7597	7567	7537	7506	7476	7445	7415	7384	7354	11'0'1323	10'4512	4543	4575	4606	4637	4669	4700	4731	4762	4794	15
16	4771	4738	4706	4673	4641	4608	4576	4543	4511	11'4478	11'1480	1513	1546	1580	1613	1646	1680	1713	1746	1780	16
17	1944	1909	1875	1840	1806	1771	1737	1702	1668	12'1633	11'8447	8483	8518	8554	8589	8624	8660	8695	8731	8766	17
18	9117	9080	9044	9007	8971	8934	8898	8861	8825	12'8788	12'5415	5452	5490	5527	5565	5602	5640	5677	5715	5752	18
19	6290	6252	6213	6174	6136	6097	6059	6020	5982	13'5943	13'2382	2422	2461	2501	2541	2580	2620	2659	2699	2738	19
20	3463	3423	3382	3342	3301	3260	3220	3179	3139	14'3098	13'9350	9391	9433	9475	9516	9558	9600	9641	9683	9725	20
21	0636	0594	0551	0509	0466	0423	0381	0338	0295	15'0253	14'6317	6361	6405	6448	6492	6536	6580	6623	6667	6711	21
22	7810	7765	7720	7676	7631	7586	7542	7497	7452	15'7408	15'3285	3330	3376	3422	3468	3514	3560	3606	3651	3697	22
23	4983	4936	4889	4843	4796	4749	4703	4656	4609	16'4563	16'0252	0300	0348	0396	0444	0492	0540	0588	0636	0683	23
24	2156	2107	2059	2010	1961	1912	1864	1815	1766	17'1717	16'7219	7270	7320	7370	7420	7470	7520	7570	7620	7670	24
25	9329	9278	9228	9177	9126	9075	9025	8974	8923	17'8872	17'4187	4239	4291	4343	4396	4448	4500	4552	4604	4656	25
26	6502	6449	6397	6344	6291	6238	6186	6133	6080	18'6027	18'1154	1209	1263	1317	1371	1426	1480	1534	1588	1642	26
27	3675	3621	3566	3511	3456	3402	3347	3292	3237	19'3182	18'8122	8178	8235	8291	8347	8403	8460	8516	8572	8628	27
28	0849	0792	0735	0678	0621	0565	0508	0451	0394	20'0337	19'5089	5148	5206	5265	5323	5381	5440	5498	5556	5615	28
29	8022	7963	7904	7845	7786	7728	7669	7610	7551	20'7492	20'2057	2117	2178	2238	2299	2359	2420	2480	2540	2601	29
30	5195	5134	5073	5012	4951	4891	4830	4769	4708	21'4647	20'9024	9042	9150	9212	9275	9337	9400	9462	9525	9587	30
31	2368	2305	2242	2179	2117	2054	1991	1928	1865	22'1802	21'5992	6057	6121	6186	6250	6315	6380	6444	6509	6573	31
32	9541	9476	9411	9346	9282	9217	9152	9087	9022	22'8957	22'2959	3026	3093	3160	3226	3293	3360	3426	3493	3559	32
33	6714	6647	6580	6514	6447	6380	6313	6246	6179	23'6112	22'9927	9996	1064	1133	1202	1271	1340	1409	1477	1546	33
34	3887	3819	3750	3681	3612	3543	3474	3405	3336	24'3266	23'6894	6965	7036	7107	7178	7249	7320	7391	7461	7532	34
35	1061	0990	0919	0848	0777	0706	0635	0564	0492	25'0421	24'3862	3935	4008	4081	4154	4227	4300	4372	4445	4518	35
36	8234	8161	8088	8015	7942	7869	7796	7723	7649	25'7576	25'0829	0904	0979	1054	1130	1205	1280	1355	1430	1504	36
37	5407	5332	5257	5182	5107	5032	4957	4881	4806	26'4731	25'7797	7874	7951	8028	8105	8182	8260	8337	8414	8491	37
38	2580	2503	2426	2349	2272	2195	2118	2040	1963	27'1886	26'4764	4843	4923	5002	5081	5160	5240	5319	5398	5477	38
39	9753	9674	9595	9516	9437	9358	9279	9199	9120	27'9041	27'1732	1813	1894	1976	2057	2138	2220	2301	2382	2463	39
40	6926	6845	6764	6683	6602	6521	6440	6358	6277	28'6196	27'8699	8783	8866	8949	9033	9116	9200	9283	9366	9449	40
41	4100	4016	3933	3850	3767	3684	3601	3517	3434	29'3351	28'5667	5752	5838	5923	6009	6094	6180	6265	6350	6436	41
42	1273	1188	1102	1017	0932	0847	0762	0676	0591	30'0506	29'2634	2722	2809	2897	2984	3072	3159	3247	3334	3422	42
43	8446	8359	8272	8184	8097	8010	7923	7835	7748	30'7660	29'9602	9691	9781	9871	9960	10050	10139	10229	10319	10408	43
44	5619	5530	5441	5351	5262	5173	5084	4994	4905	31'4815	30'6569	6661	6753	6844	6936	7028	7119	7211	7303	7394	44
45	2792	2701	2610	2519	2427	2336	2245	2153	2062	32'1970	31'3537	3630	3724	3818	3912	4006	4099	4193	4287	4381	45
46	9965	9872	9779	9686	9592	9499	9405	9312	9219	32'9125	32'0504	0600	0696	0792	0888	0984	1079	1175	1271	1367	46
47	7139	7043	6948	6853	6757	6662	6566	6471	6376	33'6280	32'7472	7570	7668	7766	7864	7962	8059	8157	8255	8353	47
48	4312	4214	4117	4020	3922	3825	3727	3630	3532	34'3435	33'4439	4539	4639	4739	4839	4939	5039	5139	5239	5339	48
49	1485	1386	1286	1187	1087	0988	0888	0789	0689	35'0590	34'1406	1509	1611	1713	1815	1917	2019	2121	2223	2325	49
50	8658	8557	8455	8354	8252	8151	8049	7948	7846	35'7745	34'8374	8478	8583	8687	8791	8895	8999	9104	9208	9312	50
51	5831	5728	5624	5521	5417	5314	5210	5107	5003	36'4905	35'5341	5448	5554	5661	5767	5873	5979	6086	6192	6298	51
52	3004	2899	2794	2688	2583	2477	2371	2266	2160	37'2055	36'2309	2417	2526	2634	2743	2851	2959	3068	3176	3284	52
53	0178	0070	9963	9855	9748	9640	9532	9425	9317	37'9209	36'9276	9387	9498	9608	9719	9829	9939	10050	10160	10270	53
54	7351	7241	7132	7022	6913	6803	6693	6584	6474	38'6364	37'6244	6357	6469	6582	6694	6807	6919	7032	7144	7257	54
55	4524	4412	4301	4189	4078	3966	3854	3743	3631	39'3519	38'3211	3326	3441	3555	3670	3785	3899	4014	4128	4243	55
56	1697	1584	1470	1356	1243	1129	1015	0902	0788	40'0674	39'0179	0296	0412	0529	0646	0763	0879	0996	1113	1229	56
57	8870	8755	8639	8523	8408	8292	8176	8061	7945	40'7829	39'7146	7265	7384	7503	7622	7741	7859	7978	8097	8215	57
58	6043	5926	5808	5691	5573	5455	5337	5220	5102	41'4984	40'4114	4235	4356	4477	4598	4718	4839	4960	5081	5202	58
59	3216	3097	2977	2858	2738	2618	2498	2379	2259	42'2139	41'1081	1204	1327	1450	1573	1696	1819	1942	2065	2188	59
60	0390	0268	0146	0025																	

TRAVERSE TABLES.

44°	COSINE.									SINE.									44°		
	20'	21'	22'	23'	24'	25'	26'	27'	28'	29'	20'	21'	22'	23'	24'	25'	26'	27'		28'	29'
1	7153	7151	7149	7147	7145	7143	7141	7139	7137	7135	6988	6990	6992	6995	6997	6999	7001	7003	7005	7007	1
2	4306	4302	4298	4294	4289	4285	4281	4277	4273	4269	13977	3981	3985	3989	3993	3997	4002	4006	4010	4014	2
3	1459	1452	1446	1440	1434	1428	1422	1416	1410	21404	20965	0971	0977	0984	0990	0996	1002	1009	1015	1021	3
4	8611	8603	8595	8587	8579	8571	8563	8554	8546	278538	27953	7962	7970	7978	7987	7995	8003	8011	8020	8028	4
5	5764	5754	5744	5734	5724	5713	5703	5693	5683	35673	34942	4952	4962	4973	4983	4994	5004	5014	5025	5035	5
6	2917	2905	2893	2881	2868	2856	2844	2832	2819	42807	41930	1942	1955	1967	1980	1992	2005	2017	2030	2042	6
7	0070	0056	0042	0027	0013	9999	9985	9970	9956	49942	48918	8933	8947	8962	8976	8991	9006	9020	9035	9049	7
8	7223	7207	7190	7174	7158	7142	7125	7109	7093	57076	55907	5923	5940	5956	5973	5990	6006	6023	6040	6056	8
9	4376	4357	4339	4321	4303	4284	4266	4248	4229	64211	62895	2914	2932	2951	2970	2988	3007	3026	3044	3063	9
10	1529	1508	1488	1468	1447	1427	1407	1386	1366	71345	69883	9904	9925	9946	9966	9987	0008	0029	0049	0070	10
11	8681	8659	8637	8614	8592	8570	8547	8525	8502	78480	76871	6994	6917	6940	6963	6986	7009	7032	7054	7077	11
12	5834	5810	5786	5761	5737	5712	5688	5663	5639	85615	83860	3885	3910	3935	3960	3985	4009	4034	4059	4084	12
13	2987	2961	2934	2908	2881	2855	2829	2802	2776	92749	90848	0875	0902	0929	0956	0983	1010	1037	1064	1091	13
14	0140	0112	0083	0055	0026	9998	9969	9941	9912	99884	97836	7866	7895	7924	7953	7982	8011	8040	8069	8098	14
15	7293	7262	7232	7201	7171	7140	7110	7079	7049	107018	104825	4856	4887	4918	4949	4981	5012	5043	5074	5105	15
16	4446	4413	4381	4348	4316	4283	4250	4218	4185	114153	111813	1846	1880	1913	1946	1979	2013	2046	2079	2112	16
17	1599	1564	1530	1495	1460	1426	1391	1357	1322	121287	118801	8837	8872	8907	8943	8978	9013	9049	9084	9119	17
18	8752	8715	8678	8642	8605	8568	8532	8495	8458	128422	125790	5827	5865	5902	5939	5977	6014	6052	6089	6126	18
19	5904	5866	5827	5788	5750	5711	5672	5634	5595	135556	132778	2818	2857	2897	2936	2976	3015	3054	3094	3133	19
20	3057	3017	2976	2935	2895	2854	2813	2772	2732	142691	139766	9808	9850	9891	9933	9974	0016	0057	0099	0140	20
21	0210	0167	0125	0082	0039	9997	9954	9911	9868	149825	146755	6798	6842	6886	6929	6973	7017	7060	7104	7147	21
22	7363	7318	7274	7229	7184	7139	7094	7050	7005	156960	153743	3789	3834	3880	3926	3972	4017	4063	4109	4154	22
23	4516	4469	4422	4376	4329	4282	4235	4188	4141	164094	160731	0779	0827	0875	0923	0970	1018	1066	1114	1161	23
24	1669	1620	1571	1522	1473	1425	1376	1327	1278	171229	167720	7770	7819	7869	7919	7969	8019	8069	8119	8168	24
25	8822	8771	8720	8669	8618	8567	8516	8465	8415	178364	174708	4760	4812	4864	4916	4968	5020	5072	5124	5175	25
26	5974	5922	5869	5816	5763	5710	5657	5604	5551	185498	181696	1750	1804	1858	1912	1966	2021	2075	2128	2182	26
27	3127	3072	3017	2963	2908	2853	2798	2743	2688	192633	188685	8741	8797	8853	8909	8965	9021	9077	9133	9189	27
28	0280	0223	0166	0109	0052	9995	9938	9881	9824	199767	195673	5731	5789	5848	5906	5964	6022	6080	6138	6197	28
29	7433	7374	7315	7256	7197	7138	7079	7020	6961	206902	202661	2721	2782	2842	2902	2963	3023	3083	3143	3204	29
30	4586	4525	4464	4403	4342	4281	4220	4159	4097	214036	209649	9712	9774	9837	9899	9961	0024	0086	0148	0211	30
31	1739	1676	1613	1550	1487	1423	1360	1297	1234	221171	216638	6702	6767	6831	6896	6960	7024	7089	7153	7218	31
32	8892	8827	8761	8695	8631	8566	8501	8436	8371	228305	223626	3693	3759	3826	3892	3959	4025	4092	4158	4225	32
33	6044	5977	5910	5843	5776	5709	5642	5574	5507	235440	230614	0683	0752	0820	0889	0957	1026	1095	1163	1232	33
34	3197	3128	3059	2990	2921	2851	2782	2713	2644	242574	237603	7673	7744	7815	7886	7956	8027	8097	8168	8239	34
35	0350	0279	0208	0137	0065	9994	9923	9852	9780	249709	244591	4664	4737	4809	4882	4955	5028	5100	5173	5246	35
36	7503	7430	7357	7283	7210	7137	7064	6990	6917	256844	251579	1654	1729	1804	1879	1954	2028	2103	2178	2253	36
37	4656	4581	4505	4429	4355	4280	4204	4129	4053	263978	258568	8645	8722	8799	8875	8952	9029	9106	9183	9260	37
38	1809	1732	1654	1577	1500	1422	1345	1267	1190	271113	265556	5635	5714	5793	5872	5951	6030	6109	6188	6267	38
39	8962	8882	8803	8724	8644	8565	8486	8406	8327	278247	272544	2625	2707	2788	2869	2950	3031	3112	3193	3274	39
40	6115	6033	5952	5870	5789	5708	5626	5545	5463	285382	279533	9616	9699	9782	9865	9948	0032	0115	0198	0281	40
41	3267	3184	3101	3017	2934	2850	2767	2683	2600	292516	286521	6606	6692	6777	6862	6947	7032	7118	7203	7288	41
42	0420	0335	0249	0164	0079	9993	9908	9822	9736	299651	293509	3597	3684	3771	3859	3946	4033	4120	4208	4295	42
43	7573	7486	7398	7311	7223	7136	7048	6961	6873	306785	300498	0676	0766	0855	0945	1034	1123	1213	1302	1392	43
44	4726	4637	4547	4458	4368	4278	4189	4099	4010	313920	307486	7577	7669	7760	7852	7943	8035	8126	8217	8309	44
45	1879	1787	1696	1604	1513	1421	1329	1238	1146	321054	314474	4568	4661	4755	4848	4942	5036	5129	5222	5316	45
46	9032	8938	8845	8751	8657	8564	8470	8376	8283	328189	321462	1558	1654	1750	1845	1941	2036	2132	2227	2323	46
47	6185	6089	5993	5898	5802	5706	5611	5515	5419	335324	328451	8549	8646	8744	8842	8939	9037	9135	9232	9330	47
48	3337	3240	3142	3045	2947	2849	2751	2654	2556	342458	335439	5539	5639	5739	5838	5938	6038	6138	6237	6337	48
49	0490	0391	0291	0191	0092	9992	9892	9792	9692	349593	342427	2529	2631	2733	2835	2937	3039	3140	3242	3344	49
50	7643	7542	7440	7338	7236	7135	7033	6931	6829	356727	349416	9520	9624	9728	9832	9936	0039	0143	0247	0351	50
51	4796	4692	4589	4485	4381	4277	4173	4070	3966	363862	356404	6510	6616	6722	6828	6934	7040	7146	7252	7358	51
52	1949	1843	1737	1632	1526	1420	1314	1208	1102	370931	363392	3501	3609	3717	3825	3933	4041	4149	4257	4365	52
53	9102	8994	8886	8778	8671	8563	8455	8347	8239	378111	370381	0491	0601	0711	0822	0932	1042	1152	1262	1372	53
54	6255	6145	6035	5925	5815	5705	5595	5485	5375	385265	377369	7481	7594	7706	7818	7930	8043	8155	8267	8379	54
55	3407	3296	3184	3072	2960	2848	2736	2624	2512	392400	384357	4472	4586	4701	4815	4929	5043	5158	5272	5386	55
56	0560	0446	0333	0219	0105	9991	9877	9763	9649	399534	391346	1462	1579	1695	1811	1928	2044	2160	2277	2393	56
57	7713	7597	7481	7365	7249	7133	7017	6901	6785	406669	398334	8453	8571	8690	8808	8927	9045	9163	9282	9400	57
58	4866	4748	4630	4512	4394	4276	4158	4040	3922	413803	405322	5443	5564	5684	5805	5925	6046	6166	6287	6407	58
59	2019	1899	1779	1659	1539	1419	1299	1178	1058	420938	412311	2433	2556	2679	2801	2924	3047	3169	3292	3414	59
60	9172	9050	8928	8806	8684	8561	8439	8317	8195	428073	419299	9424	9549	9673	9798	9923	0047	01			

TRAVERSE TABLES.

44° COSINE. SINE. 44°

TRAVERSE TABLES.

44°										Cosine.										Sine.										44°													
40'	41'	42'	43'	44'	45'	46'	47'	48'	49'	40'	41'	42'	43'	44'	45'	46'	47'	48'	49'	40'	41'	42'	43'	44'	45'	46'	47'	48'	49'	40'	41'	42'	43'	44'	45'	46'	47'	48'	49'				
1	7112	7110	7108	7106	7104	7102	7100	7099	7096	7094	7030	7032	7034	7036	7038	7040	7042	7044	7046	7048	7050	1	7112	7110	7108	7106	7104	7102	7100	7099	7096	7094	7030	7032	7034	7036	7038	7040	7042	7044	7046	7048	7050
2	4224	4220	4216	4212	4208	4204	4200	4196	4191	4187	14060	4064	4068	4072	4076	4080	4084	4088	4092	4096	4100	2	4224	4220	4216	4212	4208	4204	4200	4196	4191	4187	14060	4064	4068	4072	4076	4080	4084	4088	4092	4096	4100
3	1336	1330	1324	1318	1312	1306	1299	1293	1287	1281	21089	1096	1102	1108	1114	1120	1127	1133	1139	1145	1151	3	1336	1330	1324	1318	1312	1306	1299	1293	1287	1281	21089	1096	1102	1108	1114	1120	1127	1133	1139	1145	1151
4	8448	8440	8432	8424	8416	8407	8399	8391	8383	28375	8119	8128	8136	8144	8152	8161	8169	8177	8185	8194	8202	4	8448	8440	8432	8424	8416	8407	8399	8391	8383	28375	8119	8128	8136	8144	8152	8161	8169	8177	8185	8194	8202
5	5560	5550	5540	5530	5520	5509	5499	5489	5479	35468	5149	5159	5170	5180	5190	5201	5211	5221	5232	5242	5252	5	5560	5550	5540	5530	5520	5509	5499	5489	5479	35468	5149	5159	5170	5180	5190	5201	5211	5221	5232	5242	5252
6	2673	2660	2648	2636	2623	2611	2599	2587	2574	42562	2179	2191	2204	2216	2228	2241	2253	2266	2278	2290	2302	6	2673	2660	2648	2636	2623	2611	2599	2587	2574	42562	2179	2191	2204	2216	2228	2241	2253	2266	2278	2290	2302
7	9785	9770	9756	9742	9727	9713	9699	9684	9670	49656	9209	9223	9238	9252	9267	9281	9295	9310	9324	9339	9353	7	9785	9770	9756	9742	9727	9713	9699	9684	9670	49656	9209	9223	9238	9252	9267	9281	9295	9310	9324	9339	9353
8	6897	6890	6884	6878	6871	6863	6855	6847	6838	56749	5238	5255	5272	5288	5305	5321	5338	5354	5371	5387	5404	8	6897	6890	6884	6878	6871	6863	6855	6847	6838	56749	5238	5255	5272	5288	5305	5321	5338	5354	5371	5387	5404
9	4009	3990	3972	3954	3935	3917	3898	3880	3861	63843	3268	3287	3306	3324	3343	3361	3380	3399	3417	3436	3454	9	4009	3990	3972	3954	3935	3917	3898	3880	3861	63843	3268	3287	3306	3324	3343	3361	3380	3399	3417	3436	3454
10	1121	1100	1080	1059	1039	1019	0998	0978	0957	70937	0298	0319	0339	0360	0381	0401	0422	0443	0463	0484	0505	10	1121	1100	1080	1059	1039	1019	0998	0978	0957	70937	0298	0319	0339	0360	0381	0401	0422	0443	0463	0484	0505
11	8233	8210	8189	8165	8143	8120	8098	8075	8053	78030	7328	7351	7373	7396	7419	7442	7464	7487	7510	7532	7555	11	8233	8210	8189	8165	8143	8120	8098	8075	8053	78030	7328	7351	7373	7396	7419	7442	7464	7487	7510	7532	7555
12	5345	5320	5296	5271	5247	5222	5198	5173	5148	85124	4328	4383	4407	4432	4457	4482	4507	4531	4556	4581	4606	12	5345	5320	5296	5271	5247	5222	5198	5173	5148	85124	4328	4383	4407	4432	4457	4482	4507	4531	4556	4581	4606
13	2457	2431	2404	2377	2351	2324	2297	2271	2244	92218	1388	1414	1441	1468	1495	1522	1549	1576	1602	1629	1656	13	2457	2431	2404	2377	2351	2324	2297	2271	2244	92218	1388	1414	1441	1468	1495	1522	1549	1576	1602	1629	1656
14	9569	9541	9512	9483	9455	9426	9397	9369	9340	9311	8417	8446	8475	8504	8533	8562	8591	8620	8649	8678	8707	14	9569	9541	9512	9483	9455	9426	9397	9369	9340	9311	8417	8446	8475	8504	8533	8562	8591	8620	8649	8678	8707
15	6691	6651	6620	6589	6559	6528	6497	6466	6436	106405	5447	5478	5509	5540	5571	5602	5633	5664	5695	5726	5757	15	6691	6651	6620	6589	6559	6528	6497	6466	6436	106405	5447	5478	5509	5540	5571	5602	5633	5664	5695	5726	5757
16	3793	3761	3728	3695	3662	3630	3597	3564	3531	113499	2477	2510	2543	2576	2609	2642	2675	2708	2741	2774	2807	16	3793	3761	3728	3695	3662	3630	3597	3564	3531	113499	2477	2510	2543	2576	2609	2642	2675	2708	2741	2774	2807
17	0905	0871	0836	0801	0766	0732	0697	0662	0627	120592	9507	9542	9577	9612	9647	9682	9717	9753	9788	9823	9858	17	0905	0871	0836	0801	0766	0732	0697	0662	0627	120592	9507	9542	9577	9612	9647	9682	9717	9753	9788	9823	9858
18	8018	7981	7944	7907	7870	7833	7797	7760	7723	127686	6537	6574	6611	6648	6685	6723	6760	6797	6834	6871	6908	18	8018	7981	7944	7907	7870	7833	7797	7760	7723	127686	6537	6574	6611	6648	6685	6723	6760	6797	6834	6871	6908
19	5130	5091	5052	5013	4974	4935	4896	4857	4818	134779	3566	3606	3645	3684	3724	3763	3802	3841	3880	3920	3959	19	5130	5091	5052	5013	4974	4935	4896	4857	4818	134779	3566	3606	3645	3684	3724	3763	3802	3841	3880	3920	3959
20	2242	2201	2160	2119	2078	2037	1996	1955	1914	141873	0596	0639	0679	0720	0762	0803	0844	0886	0927	0968	1009	20	2242	2201	2160	2119	2078	2037	1996	1955	1914	141873	0596	0639	0679	0720	0762	0803	0844	0886	0927	0968	1009
21	9354	9311	9268	9225	9182	9139	9096	9053	9010	148967	7626	7669	7713	7756	7800	7843	7886	7930	7973	8017	8061	21	9354	9311	9268	9225	9182	9139	9096	9053	9010	148967	7626	7669	7713	7756	7800	7843	7886	7930	7973	8017	8061
22	6466	6421	6376	6331	6286	6241	6196	6151	6106	156060	4656	4701	4747	4792	4838	4883	4929	4974	5020	5065	5110	22	6466	6421	6376	6331	6286	6241	6196	6151	6106	156060	4656	4701	4747	4792	4838	4883	4929	4974	5020	5065	5110
23	3578	3531	3484	3437	3390	3343	3296	3248	3201	163154	1686	1733	1781	1828	1876	1923	1971	2018	2066	2113	2161	23	3578	3531	3484	3437	3390	3343	3296	3248	3201	163154	1686	1733	1781	1828	1876	1923	1971	2018	2066	2113	2161
24	0690	0641	0592	0543	0494	0444	0395	0346	0297	170248	8715	8765	8815	8864	8914	8964	9013	9063	9112	9162	9212	24	0690	0641	0592	0543	0494	0444	0395	0346	0297	170248	8715	8765	8815	8864	8914	8964	9013	9063	9112	9162	9212
25	7802	7751	7700	7649	7598	7546	7495	7444	7393	177341	5745	5797	5849	5900	5952	6004	6055	6107	6159	6210	6261	25	7802	7751	7700	7649	7598	7546	7495	7444	7393	177341	5745	5797	5849	5900	5952	6004	6055	6107	6159	6210	6261
26	4914	4861	4808	4755	4701	4648	4595	4542	4489	184435	2775	2829	2883	2936	2990	3044	3098	3151	3205	3259	3313	26	4914	4861	4808	4755	4701	4648	4595	4542	4489	184435	2775	2829	2883	2936	2990	3044	3098	3151	3205	3259	3313
27	2026	1971	1916	1861	1805	1750	1695	1639	1584	191529	9805	9861	9917	9972	10028	10084	10140	10196	10251	10307	10362	27	2026	1971	1916	1861	1805	1750	1695	1639	1584	191529	9805	9861	9917	9972	10028	10084	10140	10196	10251	10307	10362
28	9138	9091	9044	8997	8950	8902	8855	8808	8760	198622	6835	6893	6951	7008	7066	7124	7182	7240	7298	7355	7413	28	9138	9091	9044	8997	8950	8902	8855	8808	8760	198622	6835	6893	6951	7008	7066	7124	7182	7240	7298	7355	7413
29	6250	6191	6132	6072	6013	5954	5895	5835	5776	205716	3865	3924	3984	4044	4104	4164	4224	4284	4344	4404	4464	29	6250	6191	6132	6072	6013	5954	5895	5835	5776	205716	3865	3924	3984	4044	4104	4164	4224	4284	4344	4404	4464
30	3363	3301	3240	3178	3117	3056	2994	2933	2871	212810	0894	0956	1018	1080	1142	1204	1266	1328	1390	1452	1514	30	3363	3301	3240	317																	

TRAVERSE TABLES.

44°	COSINE.											SINE.											44°
	50'	51'	52'	53'	54'	55'	56'	57'	58'	59'	60'	50'	51'	52'	53'	54'	55'	56'	57'	58'	59'	60'	
	1	7092	7090	7088	7085	7083	7081	7079	7077	7075	7073	'7071	'7050	7053	7055	7057	7059	7061	7063	7065	7067	7069	
2	4183	4179	4175	4171	4167	4163	4159	4154	4150	4146	1'4142	1'4101	4105	4109	4113	4117	4122	4126	4130	4134	4138	4142	
3	1275	1269	1263	1256	1250	1244	1238	1232	1226	1219	2'1213	2'1151	1158	1164	1170	1176	1182	1189	1195	1201	1207	1213	
4	8366	8358	8350	8342	8334	8325	8317	8309	8301	8292	2'8284	2'8202	8210	8218	8227	8235	8243	8251	8260	8268	8276	8284	
5	5458	5448	5438	5427	5417	5407	5396	5386	5376	5366	3'5355	3'5252	5263	5273	5283	5294	5304	5314	5324	5335	5345	5355	
6	2550	2537	2525	2513	2500	2488	2476	2463	2451	2439	4'2426	4'2303	2315	2328	2340	2352	2365	2377	2389	2402	2414	2426	
7	9641	9627	9613	9598	9584	9569	9555	9541	9526	9512	4'9497	4'9353	9368	9382	9397	9411	9425	9440	9454	9469	9483	9497	
8	6733	6716	6700	6684	6667	6651	6634	6618	6601	6585	5'6569	5'6404	6420	6437	6453	6470	6486	6503	6519	6536	6552	6569	
9	3824	3806	3788	3769	3751	3732	3714	3695	3677	3658	6'3660	6'3454	3473	3491	3510	3528	3547	3566	3584	3603	3621	3640	
10	0916	0896	0875	0855	0834	0813	0793	0772	0752	0731	7'0711	7'0505	0525	0546	0567	0587	0608	0628	0649	0670	0691	0711	
11	8008	7985	7963	7940	7917	7895	7872	7850	7827	7804	'7782	'7755	7578	7601	7623	7646	7669	7691	7714	7736	7759	7782	
12	5099	5075	5050	5025	5001	4976	4951	4927	4902	4877	8'4853	8'4606	4630	4655	4680	4705	4729	4754	4779	4803	4828	4853	
13	2191	2164	2138	2111	2084	2057	2031	2004	1977	1951	9'1924	9'1656	1683	1710	1737	1763	1790	1817	1844	1870	1897	1924	
14	9282	9254	9225	9196	9168	9139	9110	9081	9053	9024	9'8995	9'8707	8735	8764	8793	8822	8851	8880	8909	8937	8966	8995	
15	6374	6343	6313	6282	6251	6220	6189	6159	6128	6097	10'6066	10'5757	5788	5819	5850	5881	5912	5943	5973	6004	6035	6066	
16	3466	3433	3400	3367	3334	3302	3269	3236	3203	3170	11'3137	11'2808	2841	2874	2906	2939	2972	3005	3038	3071	3104	3137	
17	0557	0522	0488	0453	0418	0383	0348	0313	0278	0243	12'0208	11'9858	9893	9928	9963	9998	10'033	10'068	10'103	10'138	10'173	10'208	
18	7649	7612	7575	7538	7501	7464	7427	7390	7353	7316	12'7279	12'6908	6946	6983	7020	7057	7094	7131	7168	7205	7242	7279	
19	4741	4702	4663	4624	4585	4546	4507	4467	4428	4389	13'4350	13'3959	3998	4037	4076	4116	4155	4194	4233	4272	4311	4350	
20	1832	1791	1750	1709	1668	1627	1586	1545	1504	1462	14'1421	14'1009	1051	1092	1136	1174	1216	1257	1298	1339	1380	1421	
21	8924	8881	8838	8794	8751	8708	8665	8622	8579	8536	14'8492	14'8060	8103	8146	8190	8233	8276	8320	8363	8406	8449	8492	
22	6015	5970	5925	5880	5835	5790	5744	5699	5654	5609	15'5563	15'5110	5156	5201	5246	5292	5337	5382	5428	5473	5518	5563	
23	3107	3060	3013	2965	2918	2871	2824	2776	2729	2682	16'2635	16'2161	2208	2256	2303	2350	2398	2445	2493	2540	2587	2635	
24	0199	0149	0100	0051	0002	9952	9903	9854	9804	9755	16'9706	16'9211	9261	9310	9360	9409	9459	9508	9557	9607	9656	9706	
25	7290	7239	7188	7136	7085	7034	6982	6931	6880	6828	17'6777	17'6262	6313	6365	6416	6468	6519	6571	6622	6674	6725	6777	
26	4322	4238	4275	4222	4168	4115	4062	4008	3955	3901	18'3848	18'3312	3366	3419	3473	3527	3580	3634	3687	3741	3794	3848	
27	1473	1418	1363	1307	1252	1196	1141	1085	1030	974	19'0919	19'0363	0418	0474	0530	0585	0641	0697	0752	0808	0863	0919	
28	8565	8508	8450	8393	8335	8278	8220	8163	8105	8047	19'7990	19'7413	7471	7529	7586	7644	7702	7759	7817	7875	7932	7990	
29	5657	5597	5538	5478	5419	5359	5299	5240	5180	5121	20'5061	20'4464	4523	4583	4643	4703	4763	4822	4882	4942	5001	5061	
30	2748	2687	2625	2564	2502	2440	2379	2317	2255	2194	21'2132	21'1514	1576	1638	1700	1761	1823	1885	1947	2009	2070	2132	
31	9840	9776	9713	9649	9585	9522	9458	9394	9331	9267	21'9203	21'8565	8628	8692	8756	8820	8884	8948	9012	9076	9139	9203	
32	6931	6866	6800	6734	6669	6603	6537	6472	6406	6340	22'6274	22'5615	5681	5747	5813	5879	5945	6011	6077	6142	6208	6274	
33	4023	3955	3888	3820	3752	3684	3617	3549	3481	3413	23'3345	23'2665	2734	2802	2870	2938	3006	3074	3142	3209	3277	3345	
34	1115	1045	0975	0905	0836	0766	0696	0626	0556	0486	24'0416	23'9716	9786	9856	9926	9996	10'066	10'136	10'206	10'276	10'346	10'416	
35	8206	8134	8063	7991	7919	7847	7775	7703	7631	7559	24'7487	24'6766	6839	6911	6983	7055	7127	7199	7271	7343	7415	7487	
36	5298	5224	5150	5076	5002	4928	4854	4780	4706	4632	25'4558	25'3817	3891	3965	4040	4114	4188	4262	4336	4410	4484	4558	
37	2389	2313	2238	2162	2086	2010	1934	1858	1782	1706	26'1630	26'0867	0944	1020	1096	1172	1249	1325	1401	1477	1553	1630	
38	9481	9404	9325	9247	9169	9091	9013	8935	8857	8779	26'8701	26'7918	7996	8075	8153	8231	8309	8388	8466	8544	8622	8701	
39	6573	6493	6413	6333	6253	6172	6092	6012	5932	5852	27'5772	27'4968	5049	5129	5210	5290	5370	5451	5531	5611	5691	5772	
40	3664	3582	3500	3418	3336	3254	3172	3089	3007	2925	28'2843	28'2019	2101	2184	2266	2349	2431	2513	2596	2678	2760	2843	
41	0756	0672	0588	0503	0419	0335	0251	0167	0082	9998	28'9914	28'9069	9154	9238	9323	9407	9492	9576	9661	9745	9829	9914	
42	7847	7761	7675	7589	7503	7416	7330	7244	7158	7071	29'6985	29'6120	6206	6293	6380	6466	6553	6639	6726	6812	6898	6985	
43	4939	4851	4763	4674	4586	4498	4410	4321	4233	4144	30'4056	30'3170	3259	3348	3436	3525	3613	3702	3790	3879	3967	4056	
44	2031	1940	1850	1760	1670	1579	1489	1398	1308	1217	31'1127	31'0221	0311	0402	0493	0584	0674	0765	0855	0946	1036	1127	
45	9122	9030	8938	8845	8753	8661	8568	8476	8383	8291	31'8198	31'7271	7364	7457	7549	7642	7735	7828	7920	8013	8105	8198	
46	6214	6120	6025	5931	5836	5742	5647	5553	5458	5364	32'5269	32'4322	4416	4511	4606	4701	4796	4890	4985	5080	5175	5269	
47	3306	3209	3113	3016	2920	2823	2727	2630	2533	2437	33'2340	33'1372	1469	1566	1663	1760	1856	1953	2050	2147	2244	2340	
48	0397	0299	0200	0102	0003	9905	9806	9707	9609	9510	33'9411	33'8423	8522	8621	8719	8818	8917	9016	9115	9214	9313	9411	
49	7489	7388	7288	7187	7087	6986	6885	6785	6684	6583	34'6482	34'5473	5574	5675	5776	5877	5978	6079	6180	6281	6382	6482	
50	4580	4478	4375	4273	4170	4067	3965	3862	3759	3656	35'3553	35'2523	2627	2730	2833	2936	3039	3142	3245	3348	3451	3553	
51	1672	1567	1463	1358	1253	1149	1044	939	834	729	36'0624	35'9574	9679	9784	9889	9995	10'0000	0205	0310	0415	0520	0624	
52	8764	8657	8550	8443	8337	8230	8123	8016	7909	7802	36'7696	36'6624	6732	6839	6946	7053	7160	7267	7374	7482	7589	7696	
53	5855	5746	5638	5529	5420	5311	5202	5094	4985	4876	37'4767	37'3675	3784	3893	4003	4112	4221	4330	4439	4549	4658	4767	
54	2947	2836	2725	2614	2503	2393	2282	2171	2060	1949	38'1838	38'0725	0837	0948	1059	1171	1282	1393	1504	1615	1727	1838	
55	0038	9926	9813	9700	9587	9474	9361	9248	9135	9022	38'8909	38'7776	7889	8003	8116	8229	8343	8456	8569	8682	8796	8909	
56	7130	7015	6900	6785	6670	6555	6440	6325	6210	6095	39'5980	39'4826	4942	5057	5173	5288	5403	5519	5634	5749	5865	5980	
57	4222	4105	3988	3871	3754	3637	3520	3402	3														

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