

八位三角函数表

测绘出版社

八 位 三 角 函 数 表

测 绘 出 版 社

简 略 说 明

1. 本表由 0° 到 90° 按每秒间隔列出正弦、余弦、正切和余切等三角函数值。
2. 前三位小数列于每行函数值的顶端和底端，若这两值不同，则其中之一标以星号，凡与这一数值相应的以下数值，都标以同样的星号。
3. 每相邻两值之差按每行内的最大差和最小差列于表内每行的顶端和底端。
4. 小角的余切变化甚速，不能用简单内插法求出，故作出由 $0^\circ 0' 0''$ 至 $2^\circ 0' 0''$ 按 $10''$ 间隔列出的辅助表。

八 位 三 角 函 数 表

(根据中国工业出版社纸型重印)

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测绘出版社出版

山西新华印刷厂印刷

新华书店北京发行所发行·各地新华书店经售

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开本 $787 \times 1092^{1/16}$ ·印张 $56\frac{3}{4}$ ·字数905,000

1976年10月北京第一版·1980年4月山西第二次印刷

印数16,001—46,200册·定价6.50元

统一书号：15039·新23

辅 助 表

$w'' \cdot \text{ctg } w$ 的八位值

由 $w = 0^\circ 0' 0''$ 至 $w = 2^\circ 0' 0''$

每 $10''$ 一载

w	w"·ctg w	w"
0° 0' 0"	206264.81"	0"
10	264.81	10
20	264.81	20
30	264.80	30
40	264.80	40
50	264.80	50
0 1 0	206264.80	60
10	264.80	70
20	264.80	80
30	264.79	90
40	264.79	100
50	264.79	110
0 2 0	206264.78	120
10	264.78	130
20	264.77	140
30	264.77	150
40	264.76	160
50	264.76	170
0 3 0	206264.75	180
10	264.75	190
20	264.74	200
30	264.73	210
40	264.73	220
50	264.72	230
0 4 0	206264.71	240
10	264.71	250
20	264.70	260
30	264.69	270
40	264.68	280
50	264.67	290
0 5 0	206264.66	300
10	264.65	310
20	264.64	320
30	264.63	330
40	264.62	340
50	264.61	350
0 6 0	206264.60	360
10	264.59	370
20	264.57	380
30	264.56	390
40	264.55	400
50	264.53	410
0 7 0	206264.52	420
10	264.51	430
20	264.49	440
30	264.48	450
40	264.46	460
50	264.45	470
0 8 0	206264.43	480
10	264.42	490
20	264.40	500
30	264.39	510
40	264.37	520
50	264.35	530
0 9 0	206264.34	540
10	264.32	550
20	264.30	560
30	264.28	570
40	264.26	580
50	264.24	590
0 10 0	206264.22	600

w	w"·ctg w	w"
0° 10' 0"	206264.22"	600"
10	264.20	610
20	264.19	620
30	264.16	630
40	264.14	640
50	264.12	650
0 11 0	206264.10	660
10	264.08	670
20	264.06	680
30	264.04	690
40	264.01	700
50	263.99	710
0 12 0	206263.97	720
10	263.95	730
20	263.92	740
30	263.90	750
40	263.87	760
50	263.85	770
0 13 0	206263.82	780
10	263.80	790
20	263.77	800
30	263.75	810
40	263.72	820
50	263.69	830
0 14 0	206263.67	840
10	263.64	850
20	263.61	860
30	263.58	870
40	263.55	880
50	263.53	890
0 15 0	206263.50	900
10	263.47	910
20	263.44	920
30	263.41	930
40	263.38	940
50	263.35	950
0 16 0	206263.32	960
10	263.29	970
20	263.25	980
30	263.22	990
40	263.19	1000
50	263.16	1010
0 17 0	206263.12	1020
10	263.09	1030
20	263.06	1040
30	263.02	1050
40	262.99	1060
50	262.96	1070
0 18 0	206262.92	1080
10	262.89	1090
20	262.85	1100
30	262.82	1110
40	262.78	1120
50	262.74	1130
0 19 0	206262.71	1140
10	262.67	1150
20	262.63	1160
30	262.59	1170
40	262.56	1180
50	262.52	1190
0 20 0	206262.48	1200

w	w"·ctg w	w"
0° 20' 0"	206262.48"	1200"
10	262.44	1210
20	262.40	1220
30	262.36	1230
40	262.32	1240
50	262.28	1250
0 21 0	206262.24	1260
10	262.20	1270
20	262.16	1280
30	262.12	1290
40	262.08	1300
50	262.03	1310
0 22 0	206261.99	1320
10	261.95	1330
20	261.90	1340
30	261.86	1350
40	261.82	1360
50	261.77	1370
0 23 0	206261.73	1380
10	261.68	1390
20	261.64	1400
30	261.59	1410
40	261.55	1420
50	261.50	1430
0 24 0	206261.46	1440
10	261.41	1450
20	261.36	1460
30	261.31	1470
40	261.27	1480
50	261.22	1490
0 25 0	206261.17	1500
10	261.12	1510
20	261.07	1520
30	261.02	1530
40	260.97	1540
50	260.92	1550
0 26 0	206260.87	1560
10	260.82	1570
20	260.77	1580
30	260.72	1590
40	260.67	1600
50	260.62	1610
0 27 0	206260.57	1620
10	260.51	1630
20	260.46	1640
30	260.41	1650
40	260.35	1660
50	260.30	1670
0 28 0	206260.25	1680
10	260.19	1690
20	260.14	1700
30	260.08	1710
40	260.03	1720
50	259.97	1730
0 29 0	206259.91	1740
10	259.86	1750
20	259.80	1760
30	259.74	1770
40	259.69	1780
50	259.63	1790
0 30 0	206259.57	1800

w	w" .ctg w	w"
0°30' 0"	206259.57"	1800"
10	259.51	1810
20	259.45	1820
30	259.39	1830
40	259.33	1840
50	259.28	1850
0 31 0	206259.22	1860
10	259.16	1870
20	259.09	1880
30	259.03	1890
40	258.97	1900
50	258.91	1910
0 32 0	206258.85	1920
10	258.79	1930
20	258.72	1940
30	258.66	1950
40	258.60	1960
50	258.53	1970
0 33 0	206258.47	1980
10	258.41	1990
20	258.34	2000
30	258.28	2010
40	258.21	2020
50	258.15	2030
0 34 0	206258.08	2040
10	258.01	2050
20	257.95	2060
30	257.88	2070
40	257.81	2080
50	257.75	2090
0 35 0	206257.68	2100
10	257.61	2110
20	257.54	2120
30	257.47	2130
40	257.41	2140
50	257.34	2150
0 36 0	206257.27	2160
10	257.20	2170
20	257.13	2180
30	257.06	2190
40	256.98	2200
50	256.91	2210
0 37 0	206256.84	2220
10	256.77	2230
20	256.70	2240
30	256.62	2250
40	256.55	2260
50	256.48	2270
0 38 0	206256.41	2280
10	256.33	2290
20	256.26	2300
30	256.18	2310
40	256.11	2320
50	256.03	2330
0 39 0	206255.96	2340
10	255.88	2350
20	255.81	2360
30	255.73	2370
40	255.65	2380
50	255.58	2390
0 40 0	206255.50	2400

w	w" .ctg w	w"
0°40' 0"	206255.50"	2400"
10	255.42	2410
20	255.34	2420
30	255.26	2430
40	255.18	2440
50	255.11	2450
0 41 0	206255.03	2460
10	254.95	2470
20	254.87	2480
30	254.79	2490
40	254.71	2500
50	254.62	2510
0 42 0	206254.54	2520
10	254.46	2530
20	254.38	2540
30	254.30	2550
40	254.22	2560
50	254.13	2570
0 43 0	206254.05	2580
10	253.97	2590
20	253.88	2600
30	253.80	2610
40	253.71	2620
50	253.63	2630
0 44 0	206253.54	2640
10	253.46	2650
20	253.37	2660
30	253.29	2670
40	253.20	2680
50	253.11	2690
0 45 0	206253.03	2700
10	252.94	2710
20	252.85	2720
30	252.76	2730
40	252.67	2740
50	252.58	2750
0 46 0	206252.50	2760
10	252.41	2770
20	252.32	2780
30	252.23	2790
40	252.14	2800
50	252.05	2810
0 47 0	206251.95	2820
10	251.86	2830
20	251.77	2840
30	251.68	2850
40	251.59	2860
50	251.49	2870
0 48 0	206251.40	2880
10	251.31	2890
20	251.22	2900
30	251.12	2910
40	251.03	2920
50	250.93	2930
0 49 0	206250.84	2940
10	250.74	2950
20	250.65	2960
30	250.55	2970
40	250.45	2980
50	250.36	2990
0 50 0	206250.26	3000

w	w" .ctg w	w"
0°50' 0"	206250.26"	3000"
10	250.16	3010
20	250.07	3020
30	249.97	3030
40	249.87	3040
50	249.77	3050
0 51 0	206249.67	3060
10	249.57	3070
20	249.48	3080
30	249.38	3090
40	249.28	3100
50	249.18	3110
0 52 0	206249.07	3120
10	248.97	3130
20	248.87	3140
30	248.77	3150
40	248.67	3160
50	248.57	3170
0 53 0	206248.46	3180
10	248.36	3190
20	248.26	3200
30	248.15	3210
40	248.05	3220
50	247.95	3230
0 54 0	206247.84	3240
10	247.74	3250
20	247.63	3260
30	247.53	3270
40	247.42	3280
50	247.31	3290
0 55 0	206247.21	3300
10	247.10	3310
20	246.99	3320
30	246.89	3330
40	246.78	3340
50	246.67	3350
0 56 0	206246.56	3360
10	246.45	3370
20	246.34	3380
30	246.23	3390
40	246.12	3400
50	246.01	3410
0 57 0	206245.90	3420
10	245.79	3430
20	245.68	3440
30	245.57	3450
40	245.46	3460
50	245.35	3470
0 58 0	206245.23	3480
10	245.12	3490
20	245.01	3500
30	244.90	3510
40	244.78	3520
50	244.67	3530
0 59 0	206244.55	3540
10	244.44	3550
20	244.32	3560
30	244.21	3570
40	244.09	3580
50	243.98	3590
1 0 0	206243.86	3600

w	w" .ctg w	w"
1° 0' 0"	206243.86"	3600"
10	243.75	3610
20	243.63	3620
30	243.51	3630
40	243.39	3640
50	243.28	3650
1 1 0	206243.16	3660
10	243.04	3670
20	242.92	3680
30	242.80	3690
40	242.68	3700
50	242.56	3710
1 2 0	206242.44	3720
10	242.32	3730
20	242.20	3740
30	242.08	3750
40	241.96	3760
50	241.84	3770
1 3 0	206241.72	3780
10	241.59	3790
20	241.47	3800
30	241.35	3810
40	241.22	3820
50	241.10	3830
1 4 0	206240.98	3840
10	240.85	3850
20	240.73	3860
30	240.60	3870
40	240.48	3880
50	240.35	3890
1 5 0	206240.23	3900
10	240.10	3910
20	239.97	3920
30	239.85	3930
40	239.72	3940
50	239.59	3950
1 6 0	206239.46	3960
10	239.34	3970
20	239.21	3980
30	239.08	3990
40	238.95	4000
50	238.82	4010
1 7 0	206238.69	4020
10	238.56	4030
20	238.43	4040
30	238.30	4050
40	238.17	4060
50	238.04	4070
1 8 0	206237.90	4080
10	237.77	4090
20	237.64	4100
30	237.51	4110
40	237.37	4120
50	237.24	4130
1 9 0	206237.11	4140
10	236.97	4150
20	236.84	4160
30	236.70	4170
40	236.57	4180
50	236.43	4190
1 10 0	206236.30	4200"

w	w" .ctg w	w"
1° 10' 0"	206236.30"	4200"
10	236.16	4210
20	236.03	4220
30	235.89	4230
40	235.75	4240
50	235.62	4250
1 11 0	206235.48	4260
10	235.34	4270
20	235.20	4280
30	235.06	4290
40	234.92	4300
50	234.79	4310
1 12 0	206234.65	4320
10	234.51	4330
20	234.37	4340
30	234.23	4350
40	234.08	4360
50	233.94	4370
1 13 0	206233.80	4380
10	233.66	4390
20	233.52	4400
30	233.38	4410
40	233.23	4420
50	233.09	4430
1 14 0	206232.95	4440
10	232.80	4450
20	232.66	4460
30	232.52	4470
40	232.37	4480
50	232.23	4490
1 15 0	206232.08	4500
10	231.93	4510
20	231.79	4520
30	231.64	4530
40	231.50	4540
50	231.35	4550
1 16 0	206231.20	4560
10	231.05	4570
20	230.91	4580
30	230.76	4590
40	230.61	4600
50	230.46	4610
1 17 0	206230.31	4620
10	230.16	4630
20	230.01	4640
30	229.86	4650
40	229.71	4660
50	229.56	4670
1 18 0	206229.41	4680
10	229.26	4690
20	229.11	4700
30	228.95	4710
40	228.80	4720
50	228.65	4730
1 19 0	206228.50	4740
10	228.34	4750
20	228.19	4760
30	228.04	4770
40	227.88	4780
50	227.73	4790
1 20 0	206227.57	4800"

w	w" .ctg w	w"
1° 20' 0"	206227.57"	4800"
10	227.42	4810
20	227.26	4820
30	227.10	4830
40	226.95	4840
50	226.79	4850
1 21 0	206226.63	4860
10	226.48	4870
20	226.32	4880
30	226.16	4890
40	226.00	4900
50	225.84	4910
1 22 0	206225.69	4920
10	225.53	4930
20	225.37	4940
30	225.21	4950
40	225.05	4960
50	224.89	4970
1 23 0	206224.73	4980
10	224.56	4990
20	224.40	5000
30	224.24	5010
40	224.08	5020
50	223.92	5030
1 24 0	206223.75	5040
10	223.59	5050
20	223.43	5060
30	223.26	5070
40	223.10	5080
50	222.94	5090
1 25 0	206222.77	5100
10	222.61	5110
20	222.44	5120
30	222.28	5130
40	222.11	5140
50	221.94	5150
1 26 0	206221.78	5160
10	221.61	5170
20	221.44	5180
30	221.27	5190
40	221.11	5200
50	220.94	5210
1 27 0	206220.77	5220
10	220.60	5230
20	220.43	5240
30	220.26	5250
40	220.09	5260
50	219.92	5270
1 28 0	206219.75	5280
10	219.58	5290
20	219.41	5300
30	219.24	5310
40	219.07	5320
50	218.89	5330
1 29 0	206218.72	5340
10	218.55	5350
20	218.38	5360
30	218.20	5370
40	218.03	5380
50	217.85	5390
1 30 0	206217.68	5400"

w	w" · ctg w	w"
1°30' 0"	206217.68"	5400"
10	217.51	5410
20	217.33	5420
30	217.16	5430
40	216.98	5440
50	216.80	5450
1 31 0	206216.63	5460
10	216.45	5470
20	216.27	5480
30	216.10	5490
40	215.92	5500
50	215.74	5510
1 32 0	206215.56	5520
10	215.38	5530
20	215.20	5540
30	215.03	5550
40	214.85	5560
50	214.67	5570
1 33 0	206214.49	5580
10	214.31	5590
20	214.12	5600
30	213.94	5610
40	213.76	5620
50	213.58	5630
1 34 0	206213.40	5640
10	213.22	5650
20	213.03	5660
30	212.85	5670
40	212.67	5680
50	212.48	5690
1 35 0	206212.30	5700
10	212.11	5710
20	211.93	5720
30	211.74	5730
40	211.56	5740
50	211.37	5750
1 36 0	206211.19	5760
10	211.00	5770
20	210.81	5780
30	210.63	5790
40	210.44	5800
50	210.25	5810
1 37 0	206210.06	5820
10	209.88	5830
20	209.69	5840
30	209.50	5850
40	209.31	5860
50	209.12	5870
1 38 0	206208.93	5880
10	208.74	5890
20	208.55	5900
30	208.36	5910
40	208.17	5920
50	207.98	5930
1 39 0	206207.78	5940
10	207.59	5950
20	207.40	5960
30	207.21	5970
40	207.01	5980
50	206.82	5990
1 40 0	206206.63	6000

w	w" · ctg w	w"
1°40' 0"	206206.63"	6000"
10	206.43	6010
20	206.24	6020
30	206.04	6030
40	205.85	6040
50	205.65	6050
1 41 0	206205.46	6060
10	205.26	6070
20	205.06	6080
30	204.87	6090
40	204.67	6100
50	204.47	6110
1 42 0	206204.27	6120
10	204.08	6130
20	203.88	6140
30	203.68	6150
40	203.48	6160
50	203.28	6170
1 43 0	206203.08	6180
10	202.88	6190
20	202.68	6200
30	202.48	6210
40	202.28	6220
50	202.08	6230
1 44 0	206201.88	6240
10	201.68	6250
20	201.47	6260
30	201.27	6270
40	201.07	6280
50	200.86	6290
1 45 0	206200.66	6300
10	200.46	6310
20	200.25	6320
30	200.05	6330
40	199.84	6340
50	199.64	6350
1 46 0	206199.43	6360
10	199.23	6370
20	199.02	6380
30	198.82	6390
40	198.61	6400
50	198.40	6410
1 47 0	206198.19	6420
10	197.99	6430
20	197.78	6440
30	197.57	6450
40	197.36	6460
50	197.15	6470
1 48 0	206196.94	6480
10	196.73	6490
20	196.52	6500
30	196.31	6510
40	196.10	6520
50	195.89	6530
1 49 0	206195.68	6540
10	195.47	6550
20	195.26	6560
30	195.05	6570
40	194.83	6580
50	194.62	6590
1 50 0	206194.41	6600

w	w" · ctg w	w"
1°50' 0"	206194.41"	6600"
10	194.19	6610
20	193.98	6620
30	193.76	6630
40	193.55	6640
50	193.34	6650
1 51 0	206193.12	6660
10	192.91	6670
20	192.69	6680
30	192.47	6690
40	192.26	6700
50	192.04	6710
1 52 0	206191.82	6720
10	191.61	6730
20	191.39	6740
30	191.17	6750
40	190.95	6760
50	190.73	6770
1 53 0	206190.51	6780
10	190.29	6790
20	190.07	6800
30	189.85	6810
40	189.63	6820
50	189.41	6830
1 54 0	206189.19	6840
10	188.97	6850
20	188.75	6860
30	188.53	6870
40	188.31	6880
50	188.08	6890
1 55 0	206187.86	6900
10	187.64	6910
20	187.41	6920
30	187.19	6930
40	186.97	6940
50	186.74	6950
1 56 0	206186.52	6960
10	186.29	6970
20	186.07	6980
30	185.84	6990
40	185.61	7000
50	185.39	7010
1 57 0	206185.16	7020
10	184.93	7030
20	184.71	7040
30	184.48	7050
40	184.25	7060
50	184.02	7070
1 58 0	206183.79	7080
10	183.56	7090
20	183.33	7100
30	183.11	7110
40	182.88	7120
50	182.64	7130
1 59 0	206182.41	7140
10	182.18	7150
20	181.95	7160
30	181.72	7170
40	181.49	7180
50	181.26	7190
2 0 0	206181.02	7200

八 位 三 角 函 数 表

由 0° 到 90° 每秒一载

0° 0'

0° 1'

0° 2'

	485	484		0	485	484	56.36	0	485	484	14.20	0	
"	sin	tg	ctg	cos	sin	tg	ctg	cos	sin	tg	ctg	cos	
	0.000	0.000		*1.000	0.000	0.000		0.999	0.000	0.000		0.999	
0	00000	00000	∞	*00000	29089	29089	3437.75	99996	58178	58178	1718.87	99983	60
1	00485	00485	2 06265	*00000	29574	29574	3381.39	99996	58662	58662	1704.67	99983	59
2	00970	00970	1 03132	*00000	30058	30058	3326.85	99995	59147	59147	1690.69	99983	58
3	01454	01454	68755	*00000	30543	30543	3274.04	99995	59632	59632	1676.95	99982	57
4	01939	01939	51566	*00000	31028	31028	3222.89	99995	60117	60117	1663.43	99982	56
5	02424	02424	41253	*00000	31513	31513	3173.30	99995	60602	60602	1650.12	99982	55
6	02909	02909	34377	*00000	31998	31998	3125.22	99995	61087	61087	1637.02	99981	54
7	03394	03394	29466	*00000	32483	32483	3078.58	99995	61571	61571	1624.13	99981	53
8	03879	03879	25783	*00000	32967	32967	3033.31	99995	62056	62056	1611.44	99981	52
9	04363	04363	22918	*00000	33452	33452	2989.34	99994	62541	62541	1598.95	99980	51
10	04848	04848	20626	*00000	33937	33937	2946.64	99994	63026	63026	1586.65	99980	50
11	05333	05333	18751	*00000	34422	34422	2905.14	99994	63511	63511	1574.54	99980	49
12	05818	05818	17189	*00000	34907	34907	2864.79	99994	63995	63995	1562.61	99980	48
13	06303	06303	15867	*00000	35391	35391	2825.55	99994	64480	64480	1550.86	99979	47
14	06787	06787	14733	*00000	35876	35876	2787.36	99994	64965	64965	1539.29	99979	46
15	07272	07272	13751	*00000	36361	36361	2750.20	99993	65450	65450	1527.89	99979	45
16	07757	07757	12892	*00000	36846	36846	2714.01	99993	65935	65935	1516.65	99978	44
17	08242	08242	12133	*00000	37331	37331	2678.76	99993	66419	66419	1505.58	99978	43
18	08727	08727	11459	*00000	37815	37815	2644.42	99993	66904	66904	1494.67	99978	42
19	09211	09211	10856	*00000	38300	38300	2610.95	99993	67389	67389	1483.92	99977	41
20	09696	09696	10313	*00000	38785	38785	2578.31	99992	67874	67874	1473.32	99977	40
21	10181	10181	9822.1	99999	39270	39270	2546.48	99992	68359	68359	1462.87	99977	39
22	10666	10666	9375.7	99999	39755	39755	2515.42	99992	68844	68844	1452.57	99976	38
23	11151	11151	8968.0	99999	40240	40240	2485.12	99992	69328	69328	1442.41	99976	37
24	11636	11636	8594.4	99999	40724	40724	2455.53	99992	69813	69813	1432.39	99976	36
25	12120	12120	8250.6	99999	41209	41209	2426.64	99992	70298	70298	1422.52	99975	35
26	12605	12605	7933.3	99999	41694	41694	2398.43	99991	70783	70783	1412.77	99975	34
27	13090	13090	7639.4	99999	42179	42179	2370.86	99991	71268	71268	1403.16	99975	33
28	13575	13575	7366.6	99999	42664	42664	2343.92	99991	71752	71752	1393.68	99974	32
29	14060	14060	7112.6	99999	43148	43148	2317.58	99991	72237	72237	1384.33	99974	31
30	14544	14544	6875.5	99999	43633	43633	2291.83	99990	72722	72722	1375.10	99974	30
31	15029	15029	6653.7	99999	44118	44118	2266.65	99990	73207	73207	1365.99	99973	29
32	15514	15514	6455.8	99999	44603	44603	2242.01	99990	73692	73692	1357.01	99973	28
33	15999	15999	6250.4	99999	45088	45088	2217.90	99990	74176	74176	1348.14	99972	27
34	16484	16484	6066.6	99999	45572	45572	2194.31	99990	74661	74661	1339.38	99972	26
35	16968	16968	5893.3	99999	46057	46057	2171.21	99989	75146	75146	1330.74	99972	25
36	17453	17453	5729.6	99998	46542	46542	2148.59	99989	75631	75631	1322.21	99971	24
37	17938	17938	5574.7	99998	47027	47027	2126.44	99989	76116	76116	1313.79	99971	23
38	18423	18423	5428.0	99998	47512	47512	2104.74	99989	76601	76601	1305.47	99971	22
39	18908	18908	5288.8	99998	47997	47997	2083.48	99988	77085	77085	1297.26	99970	21
40	19393	19393	5156.6	99998	48481	48481	2062.65	99988	77570	77570	1289.15	99970	20
41	19877	19877	5030.8	99998	48966	48966	2042.23	99988	78055	78055	1281.15	99970	19
42	20362	20362	4911.1	99998	49451	49451	2022.20	99988	78540	78540	1273.24	99969	18
43	20847	20847	4796.9	99998	49936	49936	2002.57	99988	79025	79025	1265.43	99969	17
44	21332	21332	4687.8	99998	50421	50421	1983.32	99987	79509	79509	1257.71	99968	16
45	21817	21817	4583.7	99998	50905	50905	1964.43	99987	79994	79994	1250.09	99968	15
46	22301	22301	4484.0	99998	51390	51390	1945.89	99987	80479	80479	1242.56	99968	14
47	22786	22786	4388.6	99997	51875	51875	1927.71	99987	80964	80964	1235.12	99967	13
48	23271	23271	4297.2	99997	52360	52360	1909.86	99986	81449	81449	1227.77	99967	12
49	23756	23756	4209.5	99997	52845	52845	1892.34	99986	81934	81934	1220.50	99966	11
50	24241	24241	4125.3	99997	53330	53330	1875.13	99986	82418	82418	1213.32	99966	10
51	24725	24725	4044.4	99997	53814	53814	1858.24	99986	82903	82903	1206.23	99966	9
52	25210	25210	3966.6	99997	54299	54299	1841.65	99985	83388	83388	1199.21	99965	8
53	25695	25695	3891.8	99997	54784	54784	1825.35	99985	83873	83873	1192.28	99965	7
54	26180	26180	3819.7	99997	55269	55269	1809.34	99985	84358	84358	1185.43	99964	6
55	26665	26665	3750.3	99996	55754	55754	1793.61	99984	84842	84842	1178.66	99964	5
56	27150	27150	3683.3	99996	56238	56238	1778.14	99984	85327	85327	1171.96	99964	4
57	27634	27634	3618.7	99996	56723	56723	1762.95	99984	85812	85812	1165.34	99963	3
58	28119	28119	3556.3	99996	57208	57208	1748.01	99984	86297	86297	1158.79	99963	2
59	28604	28604	3496.0	99996	57693	57693	1733.32	99983	86782	86782	1152.32	99962	1
60	29089	29089	3437.7	99996	58178	58178	1718.87	99983	87266	87266	1145.92	99962	0
	0.000	0.000		0.999	0.000	0.000		0.999	0.000	0.000		0.999	
	cos	ctg	tg	sin	cos	ctg	tg	sin	cos	ctg	tg	sin	"
	484	485		1	484	485	14.45	1	484	485	6.40	1	

89° 59'

89° 58'

89° 57'

0° 3'

0° 4'

0° 5'

	485	484		0	485	484	3.566	0	485	484	2.284	0	
"	sin	tg	ctg	cos	sin	tg	ctg	cos	sin	tg	ctg	cos	
	*0.000	*0.000		0.999	0.001	0.001		0.999	0.001	0.001		0.999	
0	*87266	*87266	1145.92	99962	16355	16355	859.436	99932	45444	45444	687.549	99894	60
1	*87751	*87751	1139.58	99961	16840	16840	855.870	99932	45929	45929	685.265	99894	59
2	*88236	*88236	1133.32	99961	17325	17325	852.334	99931	46414	46414	682.996	99893	58
3	*88721	*88721	1127.13	99961	17810	17810	848.826	99931	46898	46899	680.741	99892	57
4	*89206	*89206	1121.00	99960	18295	18295	845.347	99930	47383	47383	678.502	99891	56
5	*89691	*89691	1114.94	99960	18779	18779	841.897	99929	47868	47868	676.278	99891	55
6	*90175	*90175	1108.95	99959	19264	19264	838.474	99929	48353	48353	674.067	99890	54
7	*90660	*90660	1103.02	99959	19749	19749	835.080	99928	48838	48838	671.872	99889	53
8	*91145	*91145	1097.15	99958	20234	20234	831.713	99928	49323	49323	669.690	99889	52
9	*91630	*91630	1091.35	99958	20719	20719	828.372	99927	49807	49808	667.523	99888	51
10	*92115	*92115	1085.60	99958	21203	21203	825.059	99927	50292	50292	665.370	99887	50
11	*92599	*92599	1079.92	99957	21688	21688	821.772	99926	50777	50777	663.230	99886	49
12	*93084	*93084	1074.30	99957	22173	22173	818.511	99925	51262	51262	661.105	99886	48
13	*93569	*93569	1068.73	99956	22658	22658	815.276	99925	51747	51747	658.992	99885	47
14	*94054	*94054	1063.22	99956	23143	23143	812.066	99924	52231	52232	656.894	99884	46
15	*94539	*94539	1057.77	99955	23627	23628	808.881	99924	52716	52716	654.808	99883	45
16	*95023	*95024	1052.37	99955	24112	24112	805.721	99923	53201	53201	652.736	99883	44
17	*95508	*95508	1047.03	99954	24597	24597	802.586	99922	53686	53686	650.677	99882	43
18	*95993	*95993	1041.74	99954	25082	25082	799.476	99922	54171	54171	648.631	99881	42
19	*96478	*96478	1036.51	99953	25567	25567	796.389	99921	54656	54656	646.598	99880	41
20	*96963	*96963	1031.32	99953	26052	26052	793.326	99921	55140	55141	644.577	99880	40
21	*97448	*97448	1026.19	99953	26536	26536	790.286	99920	55625	55625	642.569	99879	39
22	*97932	*97932	1021.11	99952	27021	27021	787.270	99919	56110	56110	640.573	99878	38
23	*98417	*98417	1016.08	99952	27506	27506	784.276	99919	56595	56595	638.590	99877	37
24	*98902	*98902	1011.10	99951	27991	27991	781.306	99918	57080	57080	636.619	99877	36
25	*99387	*99387	1006.17	99951	28476	28476	778.357	99917	57564	57565	634.660	99876	35
26	*99872	*99872	1001.29	99950	28960	28961	775.431	99917	58049	58049	632.714	99875	34
27	00356	00356	996.448	99950	29445	29445	772.527	99916	58534	58534	630.779	99874	33
28	00841	00841	991.657	99949	29930	29930	769.644	99916	59019	59019	628.856	99874	32
29	01326	01326	986.913	99949	30415	30415	766.783	99915	59504	59504	626.944	99873	31
30	01811	01811	982.213	99948	30900	30900	763.943	99914	59988	59989	625.044	99872	30
31	02296	02296	977.558	99948	31384	31385	761.124	99914	60473	60473	623.156	99871	29
32	02780	02781	972.947	99947	31869	31869	758.326	99913	60958	60958	621.279	99870	28
33	03265	03265	968.379	99947	32354	32354	755.548	99912	61443	61443	619.413	99870	27
34	03750	03750	963.854	99946	32839	32839	752.791	99912	61928	61928	617.559	99869	26
35	04235	04235	959.371	99946	33324	33324	750.053	99911	62413	62413	615.715	99868	25
36	04720	04720	954.929	99945	33809	33809	747.336	99910	62897	62898	613.883	99867	24
37	05205	05205	950.529	99945	34293	34293	744.638	99910	63382	63382	612.061	99867	23
38	05689	05689	946.168	99944	34778	34778	741.959	99909	63867	63867	610.250	99866	22
39	06174	06174	941.848	99944	35263	35263	739.300	99909	64352	64352	608.450	99865	21
40	06659	06659	937.567	99943	35748	35748	736.660	99908	64837	64837	606.661	99864	20
41	07144	07144	933.325	99943	36233	36233	734.038	99907	65321	65322	604.882	99863	19
42	07629	07629	929.120	99942	36717	36718	731.435	99907	65806	65806	603.113	99863	18
43	08113	08113	924.954	99942	37202	37202	728.850	99906	66291	66291	601.355	99862	17
44	08598	08598	920.825	99941	37687	37687	726.284	99905	66776	66776	599.606	99861	16
45	09083	09083	916.732	99941	38172	38172	723.736	99905	67261	67261	597.868	99860	15
46	09568	09568	912.676	99940	38657	38657	721.205	99904	67745	67746	596.140	99859	14
47	10053	10053	908.655	99939	39141	39142	718.692	99903	68230	68231	594.423	99858	13
48	10537	10538	904.670	99939	39626	39626	716.197	99903	68715	68715	592.714	99858	12
49	11022	11022	900.719	99938	40111	40111	713.719	99902	69200	69200	591.016	99857	11
50	11507	11507	896.803	99938	40596	40596	711.257	99901	69685	69685	589.327	99856	10
51	11992	11992	892.921	99937	41081	41081	708.813	99900	70170	70170	587.648	99855	9
52	12477	12477	889.072	99937	41566	41566	706.386	99900	70654	70655	585.979	99854	8
53	12962	12962	885.256	99936	42050	42051	703.975	99899	71139	71139	584.319	99854	7
54	13446	13446	881.473	99936	42535	42535	701.580	99898	71624	71624	582.668	99853	6
55	13931	13931	877.722	99935	43020	43020	699.202	99898	72109	72109	581.027	99852	5
56	14416	14416	874.003	99935	43505	43505	696.840	99897	72594	72594	579.395	99851	4
57	14901	14901	870.315	99934	43990	43990	694.494	99896	73078	73079	577.772	99850	3
58	15386	15386	866.658	99933	44474	44475	692.163	99896	73563	73563	576.158	99849	2
59	15870	15871	863.032	99933	44959	44959	689.848	99895	74048	74048	574.553	99849	1
60	16355	16355	859.436	99932	45444	45444	687.549	99894	74533	74533	572.957	99848	0
	0.001	0.001		0.999	0.001	0.001		0.999	0.001	0.001		0.999	
	cos	ctg	tg	sin	cos	ctg	tg	sin	cos	ctg	tg	sin	"
	484	485		1	484	485	2.299	1	484	485	1.596	1	

89° 56'

89° 55'

89° 54'

0° 6'

0° 7'

0° 8'

"	485	484	1.587	0	485	484	1.167	1	485	484	894	1	"
	sin	tg	ctg	cos	sin	tg	ctg	cos	sin	tg	ctg	cos	
	0.001	0.001		0.999	0.002	0.002		0.999	0.002	0.002		0.999	
0	74533	74533	572.957	99848	03622	03622	491.106	99793	32710	32711	429.718	99729	60
1	75018	75018	571.370	99847	04106	04107	489.939	99792	33195	33196	428.824	99728	59
2	75502	75503	569.792	99846	04591	04592	488.778	99791	33680	33681	427.935	99727	58
3	75987	75988	568.222	99845	05076	05076	487.623	99790	34165	34165	427.049	99726	57
4	76472	76472	566.661	99844	05561	05561	486.473	99789	34650	34650	426.166	99725	56
5	76957	76957	565.108	99843	06046	06046	485.328	99788	35134	35135	425.287	99724	55
6	77442	77442	563.564	99843	06530	06531	484.189	99787	35619	35620	424.412	99723	54
7	77927	77927	562.029	99842	07015	07016	483.055	99786	36104	36105	423.541	99721	53
8	78411	78412	560.502	99841	07500	07501	481.926	99785	36589	36590	422.673	99720	52
9	78896	78896	558.983	99840	07985	07985	480.803	99784	37074	37074	421.809	99719	51
10	79381	79381	557.472	99839	08470	08470	479.685	99783	37558	37559	420.948	99718	50
11	79866	79866	555.969	99838	08955	08955	478.572	99782	38043	38044	420.090	99717	49
12	80351	80351	554.475	99837	09439	09440	477.464	99781	38528	38529	419.237	99716	48
13	80835	80836	552.988	99836	09924	09925	476.361	99780	39013	39014	418.386	99714	47
14	81320	81321	551.510	99836	10409	10409	475.264	99779	39498	39498	417.539	99713	46
15	81805	81805	550.039	99835	10894	10894	474.171	99778	39983	39983	416.696	99712	45
16	82290	82290	548.576	99834	11379	11379	473.084	99777	40467	40468	415.856	99711	44
17	82775	82775	547.121	99833	11863	11864	472.001	99776	40952	40953	415.019	99710	43
18	83259	83260	545.673	99832	12348	12349	470.924	99775	41437	41438	414.186	99709	42
19	83744	83745	544.234	99831	12833	12834	469.851	99774	41922	41922	413.356	99707	41
20	84229	84229	542.802	99830	13318	13318	468.783	99772	42407	42407	412.529	99706	40
21	84714	84714	541.377	99829	13803	13803	467.720	99771	42891	42892	411.705	99705	39
22	85199	85199	539.960	99829	14287	14288	466.662	99770	43376	43377	410.885	99704	38
23	85684	85684	538.550	99828	14772	14773	465.608	99769	43861	43862	410.068	99703	37
24	86168	86169	537.147	99827	15257	15258	464.560	99768	44346	44347	409.255	99701	36
25	86653	86653	535.752	99826	15742	15742	463.516	99767	44831	44831	408.444	99700	35
26	87138	87138	534.364	99825	16227	16227	462.476	99766	45315	45316	407.637	99699	34
27	87623	87623	532.983	99824	16712	16712	461.442	99765	45800	45801	406.833	99698	33
28	88108	88108	531.610	99823	17197	17197	460.412	99764	46285	46286	406.032	99697	32
29	88592	88593	530.243	99822	17681	17682	459.386	99763	46770	46771	405.235	99696	31
30	89077	89078	528.883	99821	18166	18167	458.366	99762	47255	47255	404.440	99694	30
31	89562	89562	527.531	99820	18651	18651	457.349	99761	47740	47740	403.649	99693	29
32	90047	90047	526.185	99819	19136	19136	456.337	99760	48224	48225	402.860	99692	28
33	90532	90532	524.846	99818	19621	19621	455.330	99759	48709	48710	402.075	99691	27
34	91016	91017	523.514	99818	20105	20106	454.327	99758	49194	49195	401.293	99690	26
35	91501	91502	522.189	99817	20590	20591	453.329	99757	49679	49680	400.513	99688	25
36	91986	91986	520.870	99816	21075	21075	452.334	99756	50164	50164	399.737	99687	24
37	92471	92471	519.558	99815	21560	21560	451.345	99755	50648	50649	398.964	99686	23
38	92956	92956	518.253	99814	22044	22045	450.359	99753	51133	51134	398.194	99685	22
39	93441	93441	516.954	99813	22529	22530	449.378	99752	51618	51619	397.427	99683	21
40	93925	93926	515.661	99812	23014	23015	448.401	99751	52103	52104	396.662	99682	20
41	94410	94411	514.375	99811	23499	23499	447.428	99750	52588	52588	395.901	99681	19
42	94895	94895	513.096	99810	23984	23984	446.460	99749	53072	53073	395.142	99680	18
43	95380	95380	511.823	99809	24469	24469	445.496	99748	53557	53558	394.387	99679	17
44	95865	95865	510.556	99808	24953	24954	444.535	99747	54042	54043	393.634	99677	16
45	96350	96350	509.295	99807	25438	25439	443.579	99746	54527	54528	392.884	99676	15
46	96834	96835	508.041	99806	25923	25924	442.628	99745	55012	55013	392.138	99675	14
47	97319	97319	506.792	99805	26408	26408	441.680	99744	55497	55497	391.393	99674	13
48	97804	97804	505.550	99804	26893	26893	440.736	99743	55981	55982	390.652	99672	12
49	98289	98289	504.314	99803	27377	27378	439.796	99741	56466	56467	389.914	99671	11
50	98773	98774	503.084	99802	27862	27863	438.861	99740	56951	56952	389.178	99670	10
51	99258	99259	501.860	99801	28347	28348	437.929	99739	57436	57437	388.445	99669	9
52	99743	99744	500.642	99801	28832	28832	437.001	99738	57921	57921	387.715	99667	8
53	*00228	*00228	499.430	99800	29317	29317	436.077	99737	58405	58406	386.988	99666	7
54	*00713	*00713	498.224	99799	29801	29802	435.157	99736	58890	58891	386.263	99665	6
55	*01198	*01198	497.023	99798	30286	30287	434.241	99735	59375	59376	385.541	99664	5
56	*01682	*01683	495.828	99797	30771	30772	433.329	99734	59860	59861	384.822	99662	4
57	*02167	*02168	494.639	99796	31256	31257	432.420	99733	60345	60346	384.105	99661	3
58	*02652	*02652	493.456	99795	31741	31741	431.516	99731	60829	60830	383.391	99660	2
59	*03137	*03137	492.278	99794	32226	32226	430.615	99730	61314	61315	382.680	99659	1
60	*03622	*03622	491.106	99793	32710	32711	429.718	99729	61799	61800	381.971	99657	0
	*0.002	*0.002		0.999	0.002	0.002		0.999	0.002	0.002		0.999	
	cos	ctg	tg	sin	cos	ctg	tg	sin	cos	ctg	tg	sin	"
	484	485	1.172	1	484	485	0.897	2	484	485	709	2	

89° 53'

89° 52'

89° 51'

0° 9'

0° 10'

0° 11'

	485	484	706	1	485	484	572	1	485	484	4728	1	
"	sin	tg	ctg	cos	sin	tg	ctg	cos	sin	tg	ctg	cos	"
	0.002	0.002		0.999	0.002	0.002		0.999	0.003	0.003		0.999	
0	61799	61800	381.971	99657	*90888	*90889	343.774	99577	19976	19978	312.5214	99483	60
1	62284	62285	381.265	99656	*91373	*91374	343.202	99576	20461	20463	312.0486	99487	59
2	62769	62770	380.561	99655	*91857	*91859	342.632	99574	20946	20948	311.5772	99485	58
3	63254	63254	379.861	99653	*92342	*92343	342.063	99573	21431	21433	311.1072	99483	57
4	63738	63739	379.162	99652	*92827	*92828	341.497	99571	21916	21917	310.6387	99482	56
5	64223	64224	378.467	99651	*93312	*93313	340.933	99570	22401	22402	310.1716	99480	55
6	64708	64709	377.773	99650	*93797	*93798	340.370	99568	22885	22887	309.7058	99479	54
7	65193	65194	377.083	99648	*94281	*94283	339.809	99567	23370	23372	309.2415	99477	53
8	65678	65679	376.395	99647	*94766	*94768	339.250	99566	23855	23857	308.7786	99476	52
9	66162	66163	375.709	99646	*95251	*95252	338.693	99564	24340	24341	308.3170	99474	51
10	66647	66648	375.026	99644	*95736	*95737	338.138	99563	24825	24826	307.8568	99472	50
11	67132	67133	374.345	99643	*96221	*96222	337.585	99561	25309	25311	307.3980	99471	49
12	67617	67618	373.667	99642	*96706	*96707	337.033	99560	25794	25796	306.9406	99469	48
13	68102	68103	372.992	99641	*97190	*97192	336.483	99558	26279	26281	306.4845	99468	47
14	68586	68587	372.318	99639	*97675	*97676	335.935	99557	26764	26766	306.0298	99466	46
15	69071	69072	371.647	99638	*98160	*98161	335.389	99556	27249	27250	305.5764	99465	45
16	69556	69557	370.979	99637	*98645	*98646	334.844	99554	27733	27735	305.1244	99463	44
17	70041	70042	370.313	99635	*99130	*99131	334.302	99553	28218	28220	304.6737	99461	43
18	70526	70527	369.649	99634	*99614	*99616	333.761	99551	28703	28705	304.2243	99460	42
19	71011	71012	368.988	99633	00099	00101	333.222	99550	29188	29190	303.7762	99458	41
20	71495	71496	368.329	99631	00584	00585	332.684	99548	29673	29674	303.3295	99457	40
21	71980	71981	367.673	99630	01069	01070	332.148	99547	30158	30159	302.8841	99455	39
22	72465	72466	367.018	99629	01554	01555	331.614	99545	30642	30644	302.4400	99453	38
23	72950	72951	366.366	99627	02038	02040	331.082	99544	31127	31129	301.9971	99452	37
24	73435	73436	365.717	99626	02523	02525	330.552	99542	31612	31614	301.5556	99450	36
25	73919	73920	365.070	99625	03008	03009	330.023	99541	32097	32099	301.1154	99449	35
26	74404	74405	364.425	99624	03493	03494	329.495	99539	32582	32583	300.6765	99447	34
27	74889	74890	363.782	99622	03978	03979	328.970	99538	33066	33068	300.2388	99445	33
28	75374	75375	363.141	99621	04463	04464	328.446	99537	33551	33553	299.8024	99444	32
29	75859	75860	362.503	99620	04947	04949	327.924	99535	34036	34038	299.3673	99442	31
30	76343	76345	361.867	99618	05432	05434	327.403	99534	34521	34523	298.9334	99440	30
31	76828	76829	361.233	99617	05917	05918	326.885	99532	35006	35008	298.5008	99439	29
32	77313	77314	360.602	99615	06402	06403	326.367	99531	35490	35492	298.0694	99437	28
33	77798	77799	359.973	99614	06887	06888	325.852	99529	35975	35977	297.6393	99436	27
34	78283	78284	359.345	99613	07371	07373	325.338	99528	36460	36462	297.2104	99434	26
35	78768	78769	358.720	99611	07856	07858	324.825	99526	36945	36947	296.7828	99432	25
36	79252	79253	358.098	99610	08341	08342	324.315	99525	37430	37432	296.3564	99431	24
37	79737	79738	357.477	99609	08826	08827	323.806	99523	37914	37916	295.9312	99429	23
38	80222	80223	356.859	99607	09311	09312	323.298	99522	38399	38401	295.5072	99427	22
39	80707	80708	356.242	99606	09795	09797	322.792	99520	38884	38886	295.0844	99426	21
40	81192	81193	355.628	99605	10280	10282	322.288	99519	39369	39371	294.6629	99424	20
41	81676	81677	355.016	99603	10765	10767	321.785	99517	39854	39856	294.2425	99422	19
42	82161	82162	354.406	99602	11250	11251	321.284	99516	40339	40341	293.8234	99421	18
43	82646	82647	353.798	99601	11735	11736	320.784	99514	40823	40825	293.4054	99419	17
44	83131	83132	353.192	99599	12220	12221	320.286	99513	41308	41310	292.9886	99418	16
45	83616	83617	352.588	99598	12704	12706	319.789	99511	41793	41795	292.5731	99416	15
46	84100	84102	351.987	99596	13189	13191	319.294	99510	42278	42280	292.1586	99414	14
47	84585	84586	351.387	99595	13674	13675	318.801	99508	42763	42765	291.7454	99413	13
48	85070	85071	350.790	99594	14159	14160	318.309	99507	43247	43249	291.3333	99411	12
49	85555	85556	350.194	99592	14644	14645	317.818	99505	43732	43734	290.9224	99409	11
50	86040	86041	349.600	99591	15128	15130	317.329	99503	44217	44219	290.5127	99408	10
51	86524	86526	349.009	99590	15613	15615	316.842	99502	44702	44704	290.1041	99406	9
52	87009	87010	348.419	99588	16098	16100	316.356	99500	45187	45189	289.6966	99404	8
53	87494	87495	347.832	99587	16583	16584	315.872	99499	45671	45674	289.2903	99403	7
54	87979	87980	347.246	99585	17068	17069	315.389	99497	46156	46158	288.8851	99401	6
55	88464	88465	346.663	99584	17552	17554	314.907	99496	46641	46643	288.4811	99399	5
56	88949	88950	346.081	99583	18037	18039	314.427	99494	47126	47128	288.0782	99398	4
57	89433	89435	345.501	99581	18522	18524	313.948	99493	47611	47613	287.6764	99396	3
58	89918	89919	344.923	99580	19007	19008	313.471	99491	48096	48098	287.2757	99394	2
59	90403	90404	344.348	99578	19492	19493	312.996	99490	48580	48582	286.8762	99392	1
60	90888	90889	343.774	99577	19976	19978	312.521	99488	49065	49067	286.4777	99391	0
	0.002	0.002		0.999	0.003	0.003		0.999	0.003	0.003		0.999	
	cos	ctg	tg	sin	cos	ctg	tg	sin	cos	ctg	tg	sin	"
	484	485	574	2	484	485	475	2	484	485	3985	2	

89° 50'

89° 49'

89° 48'

0° 12'

0° 13'

0° 14'

"	485	484	3973	1	485	484	3386	1	485	484	2920	2	"
	sin	tg	ctg	cos	sin	tg	ctg	cos	sin	tg	ctg	cos	
	0.003	0.003		0.999	0.003	0.003		0.999	0.004	0.004		0.999	
0	49065	49067	286.4777	99391	78154	78156	264.4408	99285	07242	07246	245.5520	99171	60
1	49550	49552	286.0804	99389	78639	78641	264.1022	99283	07727	07731	245.2600	99169	59
2	50035	50037	285.6842	99387	79123	79126	263.7645	99281	08212	08215	244.9687	99167	58
3	50520	50522	285.2890	99386	79608	79611	263.4276	99279	08697	08700	244.6781	99165	57
4	51004	51007	284.8950	99384	80093	80096	263.0916	99278	09182	09185	244.3882	99163	56
5	51489	51491	284.5020	99382	80578	80581	262.7564	99276	09666	09670	244.0990	99161	55
6	51974	51976	284.1101	99381	81063	81065	262.4221	99274	10151	10155	243.8105	99159	54
7	52459	52461	283.7193	99379	81547	81550	262.0887	99272	10636	10639	243.5226	99157	53
8	52944	52946	283.3296	99377	82032	82035	261.7561	99270	11121	11124	243.2354	99155	52
9	53428	53431	282.9409	99375	82517	82520	261.4243	99268	11606	11609	242.9489	99153	51
10	53913	53915	282.5533	99374	83002	83005	261.0934	99267	12090	12094	242.6631	99151	50
11	54398	54400	282.1668	99372	83487	83490	260.7633	99265	12575	12579	242.3780	99149	49
12	54883	54885	281.7813	99370	83971	83974	260.4341	99263	13060	13064	242.0935	99147	48
13	55368	55370	281.3969	99369	84456	84459	260.1057	99261	13545	13548	241.8096	99145	47
14	55852	55855	281.0135	99367	84941	84944	259.7781	99259	14030	14033	241.5265	99143	46
15	56337	56340	280.6312	99365	85426	85429	259.4513	99257	14515	14518	241.2440	99141	45
16	56822	56824	280.2499	99363	85911	85914	259.1254	99255	14999	15003	240.9622	99139	44
17	57307	57309	279.8696	99362	86396	86398	258.8002	99253	15484	15488	240.6810	99137	43
18	57792	57794	279.4904	99360	86880	86883	258.4759	99252	15969	15973	240.4005	99135	42
19	58277	58279	279.1122	99358	87365	87368	258.1524	99250	16454	16457	240.1206	99133	41
20	58761	58764	278.7350	99356	87850	87853	257.8297	99248	16939	16942	239.8414	99131	40
21	59246	59248	278.3589	99355	88335	88338	257.5078	99246	17423	17427	239.5628	99129	39
22	59731	59733	277.9837	99353	88820	88823	257.1867	99244	17908	17912	239.2849	99127	38
23	60216	60218	277.6096	99351	89304	89307	256.8665	99242	18393	18397	239.0077	99125	37
24	60701	60703	277.2364	99349	89789	89792	256.5470	99240	18878	18881	238.7310	99123	36
25	61185	61188	276.8643	99348	90274	90277	256.2283	99238	19363	19366	238.4550	99121	35
26	61670	61673	276.4932	99346	90759	90762	255.9104	99237	19847	19851	238.1797	99119	34
27	62155	62157	276.1230	99344	91244	91247	255.5933	99235	20332	20336	237.9049	99117	33
28	62640	62642	275.7539	99342	91728	91731	255.2769	99233	20817	20821	237.6309	99115	32
29	63125	63127	275.3857	99341	92213	92216	254.9614	99231	21302	21306	237.3574	99113	31
30	63609	63612	275.0185	99339	92698	92701	254.6466	99229	21787	21790	237.0846	99110	30
31	64094	64097	274.6523	99337	93183	93186	254.3326	99227	22271	22275	236.8124	99108	29
32	64579	64582	274.2871	99335	93668	93671	254.0194	99225	22756	22760	236.5408	99106	28
33	65064	65066	273.9228	99334	94153	94156	253.7069	99223	23241	23245	236.2698	99104	27
34	65549	65551	273.5595	99332	94637	94640	253.3953	99221	23726	23730	235.9995	99102	26
35	66034	66036	273.1972	99330	95122	95125	253.0843	99219	24211	24215	235.7298	99100	25
36	66518	66521	272.8358	99328	95607	95610	252.7742	99217	24696	24699	235.4607	99098	24
37	67003	67006	272.4754	99327	96092	96095	252.4648	99216	25180	25184	235.1922	99096	23
38	67488	67490	272.1159	99325	96577	96580	252.1561	99214	25665	25669	234.9243	99094	22
39	67973	67975	271.7574	99323	97061	97064	251.8483	99212	26150	26154	234.6571	99092	21
40	68458	68460	271.3998	99321	97546	97549	251.5411	99210	26635	26639	234.3904	99090	20
41	68942	68945	271.0432	99319	98031	98034	251.2347	99208	27120	27123	234.1243	99088	19
42	69427	69430	270.6875	99318	98516	98519	250.9291	99206	27604	27608	233.8589	99086	18
43	69912	69915	270.3327	99316	99001	99004	250.6242	99204	28089	28093	233.5941	99084	17
44	70397	70399	269.9789	99314	99485	99488	250.3200	99202	28574	28578	233.3298	99082	16
45	70882	70884	269.6260	99312	99970	99973	250.0166	99200	29059	29063	233.0661	99080	15
46	71366	71369	269.2740	99310	*00455	*00458	249.7139	99198	29544	29548	232.8031	99077	14
47	71851	71854	268.9229	99309	*00940	*00943	249.4120	99196	30028	30032	232.5406	99075	13
48	72336	72339	268.5727	99307	*01425	*01428	249.1107	99194	30513	30517	232.2788	99073	12
49	72821	72823	268.2235	99305	*01909	*01913	248.8102	99192	30998	31002	232.0175	99071	11
50	73306	73308	267.8751	99303	*02394	*02398	248.5105	99190	31483	31487	231.7568	99069	10
51	73790	73793	267.5277	99301	*02879	*02882	248.2114	99188	31968	31972	231.4967	99067	9
52	74275	74278	267.1811	99300	*03364	*03367	247.9131	99186	32452	32456	231.2371	99065	8
53	74760	74763	266.8355	99298	*03849	*03852	247.6155	99185	32937	32941	230.9782	99063	7
54	75245	75248	266.4907	99296	*04334	*04337	247.3186	99183	33422	33426	230.7198	99061	6
55	75730	75732	266.1469	99294	*04818	*04822	247.0224	99181	33907	33911	230.4620	99059	5
56	76215	76217	265.8039	99292	*05303	*05306	246.7269	99179	34392	34396	230.2048	99057	4
57	76699	76702	265.4618	99290	*05788	*05791	246.4321	99177	34877	34881	229.9482	99054	3
58	77184	77187	265.1206	99289	*06273	*06276	246.1380	99175	35361	35365	229.6921	99052	2
59	77669	77672	264.7803	99287	*06758	*06761	245.8447	99173	35846	35850	229.4366	99050	1
60	78154	78156	264.4408	99285	*07242	*07246	245.5520	99171	36331	36335	229.1817	99048	0
	0.003	0.003		0.999	*0.004	*0.004		0.999	0.004	0.004		0.999	
	cos	ctg	tg	sin	cos	ctg	tg	sin	cos	ctg	tg	sin	"
	484	485	3395	2	484	485	2927	2	484	485	2549	3	

89° 47'

89° 46'

89° 45'

0° 15'				0° 16'				0° 17'					
	485	484	2544	2	485	484	2236	2	485	484	1980	2	
"	sin	tg	ctg	cos	sin	tg	ctg	cos	sin	tg	ctg	cos	
	0.004	0.004		0.999	0.004	0.004		0.999	0.004	0.004		0.999	
0	36331	36335	229.1817	99048	65419	65424	214.8576	98917	*94508	*94514	202.2187	98777	60
1	36816	36820	228.9273	99046	65904	65909	214.6340	98915	*94993	*94999	202.0207	98775	59
2	37301	37305	228.6735	99044	66389	66394	214.4109	98912	*95478	*95484	201.8230	98773	58
3	37785	37790	228.4203	99042	66874	66879	214.1883	98910	*95962	*95968	201.6257	98770	57
4	38270	38274	228.1676	99040	67359	67364	213.9661	98908	*96447	*96453	201.4288	98768	56
5	38755	38759	227.9155	99037	67843	67849	213.7444	98906	*96932	*96938	201.2323	98765	55
6	39240	39244	227.6639	99035	68328	68333	213.5231	98903	*97417	*97423	201.0362	98763	54
7	39725	39729	227.4129	99033	68813	68818	213.3023	98901	*97902	*97908	200.8404	98760	53
8	40209	40214	227.1624	99031	69298	69303	213.0819	98899	*98386	*98393	200.6450	98758	52
9	40694	40698	226.9125	99029	69783	69788	212.8620	98897	*98871	*98877	200.4500	98756	51
10	41179	41183	226.6632	99027	70268	70273	212.6426	98894	*99356	*99362	200.2554	98753	50
11	41664	41668	226.4143	99025	70752	70758	212.4236	98892	*99841	*99847	200.0612	98751	49
12	42149	42153	226.1661	99023	71237	71242	212.2050	98890	00326	00332	199.8673	98748	48
13	42633	42638	225.9184	99020	71722	71727	211.9869	98887	00810	00817	199.6738	98746	47
14	43118	43123	225.6712	99018	72207	72212	211.7693	98885	01295	01302	199.4807	98744	46
15	43603	43607	225.4245	99016	72692	72697	211.5521	98883	01780	01786	199.2880	98741	45
16	44088	44092	225.1784	99014	73176	73182	211.3353	98881	02265	02271	199.0956	98739	44
17	44573	44577	224.9329	99012	73661	73667	211.1190	98878	02750	02756	198.9036	98736	43
18	45057	45062	224.6878	99010	74146	74151	210.9031	98876	03234	03241	198.7120	98734	42
19	45542	45547	224.4434	99007	74631	74636	210.6877	98874	03719	03726	198.5208	98731	41
20	46027	46032	224.1994	99005	75116	75121	210.4727	98871	04204	04211	198.3299	98729	40
21	46512	46516	223.9560	99003	75600	75606	210.2582	98869	04689	04695	198.1393	98726	39
22	46997	47001	223.7131	99001	76085	76091	210.0440	98867	05174	05180	197.9492	98724	38
23	47482	47486	223.4707	98999	76570	76575	209.8304	98864	05659	05665	197.7594	98722	37
24	47966	47971	223.2288	98997	77055	77060	209.6171	98862	06143	06150	197.5700	98719	36
25	48451	48456	222.9875	98994	77540	77545	209.4043	98860	06628	06635	197.3809	98717	35
26	48936	48940	222.7467	98992	78024	78030	209.1919	98857	07113	07119	197.1922	98714	34
27	49421	49425	222.5064	98990	78509	78515	208.9800	98855	07598	07604	197.0039	98712	33
28	49906	49910	222.2666	98988	78994	79000	208.7685	98853	08083	08089	196.8159	98709	32
29	50390	50395	222.0274	98986	79479	79484	208.5574	98850	08567	08574	196.6282	98707	31
30	50875	50880	221.7886	98984	79964	79969	208.3467	98848	09052	09059	196.4410	98704	30
31	51360	51365	221.5504	98981	80449	80454	208.1364	98846	09537	09544	196.2541	98702	29
32	51845	51849	221.3127	98979	80933	80939	207.9266	98844	10022	10028	196.0675	98699	28
33	52330	52334	221.0755	98977	81418	81424	207.7172	98841	10507	10513	195.8813	98697	27
34	52814	52819	220.8388	98975	81903	81909	207.5083	98839	10991	10998	195.6955	98694	26
35	53299	53304	220.6026	98973	82388	82393	207.2997	98837	11476	11483	195.5100	98692	25
36	53784	53789	220.3669	98970	82873	82878	207.0916	98834	11961	11968	195.3248	98689	24
37	54269	54274	220.1317	98968	83357	83363	206.8839	98832	12446	12453	195.1400	98687	23
38	54754	54758	219.8970	98966	83842	83848	206.6765	98829	12931	12937	194.9556	98685	22
39	55238	55243	219.6628	98964	84327	84333	206.4697	98827	13415	13422	194.7715	98682	21
40	55723	55728	219.4291	98962	84812	84817	206.2632	98825	13900	13907	194.5877	98680	20
41	56208	56213	219.1959	98959	85297	85302	206.0571	98822	14385	14392	194.4043	98677	19
42	56693	56698	218.9632	98957	85781	85787	205.8515	98820	14870	14877	194.2213	98675	18
43	57178	57182	218.7310	98955	86266	86272	205.6462	98818	15355	15362	194.0386	98672	17
44	57663	57667	218.4993	98953	86751	86757	205.4414	98815	15839	15846	193.8562	98670	16
45	58147	58152	218.2681	98950	87236	87242	205.2370	98813	16324	16331	193.6742	98667	15
46	58632	58637	218.0374	98948	87721	87726	205.0330	98811	16809	16816	193.4925	98665	14
47	59117	59122	217.8071	98946	88205	88211	204.8294	98808	17294	17301	193.3111	98662	13
48	59602	59607	217.5774	98944	88690	88696	204.6262	98806	17779	17786	193.1301	98660	12
49	60087	60091	217.3481	98942	89175	89181	204.4234	98804	18264	18270	192.9494	98657	11
50	60571	60576	217.1193	98939	89660	89666	204.2209	98801	18748	18755	192.7691	98654	10
51	61056	61061	216.8910	98937	90145	90151	204.0189	98799	19233	19240	192.5891	98652	9
52	61541	61546	216.6632	98935	90629	90635	203.8173	98796	19718	19725	192.4095	98649	8
53	62026	62031	216.4358	98933	91114	91120	203.6161	98794	20203	20210	192.2301	98647	7
54	62511	62516	216.2089	98930	91599	91605	203.4153	98792	20688	20695	192.0512	98644	6
55	62995	63000	215.9825	98928	92084	92090	203.2149	98789	21172	21179	191.8725	98642	5
56	63480	63485	215.7566	98926	92569	92575	203.0149	98787	21657	21664	191.6942	98639	4
57	63965	63970	215.5312	98924	93054	93060	202.8153	98784	22142	22149	191.5162	98637	3
58	64450	64455	215.3062	98921	93538	93544	202.6160	98782	22627	22634	191.3385	98634	2
59	64935	64940	215.0817	98919	94023	94029	202.4172	98780	23112	23119	191.1612	98632	1
60	65419	65424	214.8576	98917	94508	94514	202.2187	98777	23596	23604	190.9842	98629	0
	0.004	0.004		0.999	0.004	0.004		0.999	0.005	0.005		0.999	
	cos	ctg	tg	sin	cos	ctg	tg	sin	cos	ctg	tg	sin	"
	484	485	2241	3	484	485	1985	3	484	485	1770	3	

89° 44'

89° 43'

89° 42'

0° 18'

0° 19'

0° 20'

°	0° 18'				0° 19'				0° 20'				°
	485	484	1767	2	485	484	1586	2	485	484	1431	2	
	sin	tg	ctg	cos	sin	tg	ctg	cos	sin	tg	ctg	cos	
0	0.005	0.005		0.999	0.005	0.005		0.999	0.005	0.005		0.999	
1	23596	23604	190.9842	98629	52685	52693	180.9322	98473	81773	81783	171.8854	98308	60
2	24081	24088	190.8075	98627	53170	53178	180.7736	98470	82258	82268	171.7423	98305	59
3	24566	24573	190.6312	98624	53654	53663	180.6153	98467	82743	82753	171.5994	98302	58
4	25051	25058	190.4551	98622	54139	54148	180.4573	98465	83228	83237	171.4567	98299	57
5	25536	25543	190.2794	98619	54624	54633	180.2996	98462	83712	83722	171.3143	98296	56
6	26020	26028	190.1041	98617	55109	55117	180.1421	98459	84197	84207	171.1722	98294	55
7	26505	26513	189.9290	98614	55594	55602	179.9849	98457	84682	84692	171.0302	98291	54
8	26990	26997	189.7543	98611	56078	56087	179.8280	98454	85167	85177	170.8885	98288	53
9	27475	27482	189.5799	98609	56563	56572	179.6713	98451	85652	85662	170.7471	98285	52
10	27960	27967	189.4058	98606	57048	57057	179.5149	98448	86136	86146	170.6058	98282	51
11	28444	28452	189.2320	98604	57533	57542	179.3588	98446	86621	86631	170.4648	98279	50
12	28929	28937	189.0586	98601	58018	58026	179.2030	98443	87106	87116	170.3241	98277	49
13	29414	29421	188.8854	98599	58502	58511	179.0474	98440	87591	87601	170.1835	98274	48
14	29899	29906	188.7126	98596	58987	58996	178.8922	98438	88076	88086	170.0432	98271	47
15	30384	30391	188.5401	98593	59472	59481	178.7371	98435	88560	88571	169.9032	98268	46
16	30868	30876	188.3679	98591	59957	59966	178.5824	98432	89045	89055	169.7633	98265	45
17	31353	31361	188.1960	98588	60442	60450	178.4279	98430	89530	89540	169.6237	98262	44
18	31838	31846	188.0245	98586	60926	60935	178.2737	98427	90015	90025	169.4843	98259	43
19	32323	32330	187.8532	98583	61411	61420	178.1197	98424	90500	90510	169.3452	98257	42
20	32808	32815	187.6823	98581	61896	61905	177.9660	98421	90984	90995	169.2062	98254	41
21	33293	33300	187.5117	98578	62381	62390	177.8126	98419	91469	91480	169.0675	98251	40
22	33777	33785	187.3414	98575	62866	62875	177.6595	98416	91954	91964	168.9291	98248	39
23	34262	34270	187.1714	98573	63351	63359	177.5066	98413	92439	92449	168.7908	98245	38
24	34747	34755	187.0017	98570	63835	63844	177.3539	98410	92924	92934	168.6528	98242	37
25	35232	35239	186.8323	98568	64320	64329	177.2016	98408	93408	93419	168.5150	98239	36
26	35717	35724	186.6632	98565	64805	64814	177.0495	98405	93893	93904	168.3775	98236	35
27	36201	36209	186.4944	98562	65290	65299	176.8976	98402	94378	94389	168.2401	98234	34
28	36686	36694	186.3259	98560	65775	65784	176.7460	98399	94863	94873	168.1030	98231	33
29	37171	37179	186.1578	98557	66259	66268	176.5947	98397	95348	95358	167.9661	98228	32
30	37656	37664	185.9899	98555	66744	66753	176.4436	98394	95832	95843	167.8294	98225	31
31	38141	38148	185.8224	98552	67229	67238	176.2928	98391	96317	96328	167.6930	98222	30
32	38625	38633	185.6551	98549	67714	67723	176.1423	98388	96802	96813	167.5567	98219	29
33	39110	39118	185.4881	98547	68199	68208	175.9920	98386	97287	97298	167.4207	98216	28
34	39595	39603	185.3215	98544	68683	68693	175.8419	98383	97772	97782	167.2850	98213	27
35	40080	40088	185.1551	98542	69168	69177	175.6921	98380	98257	98267	167.1494	98210	26
36	40565	40573	184.9891	98539	69653	69662	175.5426	98377	98741	98752	167.0140	98208	25
37	41049	41057	184.8233	98536	70138	70147	175.3933	98375	99226	99237	166.8789	98205	24
38	41534	41542	184.6578	98534	70623	70632	175.2443	98372	99711	99722	166.7440	98202	23
39	42019	42027	184.4927	98531	71107	71117	175.0956	98369	*00196	*00207	166.6093	98199	22
40	42504	42512	184.3278	98528	71592	71602	174.9470	98366	*00681	*00691	166.4748	98196	21
41	42989	42997	184.1632	98526	72077	72086	174.7988	98364	*01165	*01176	166.3406	98193	20
42	43473	43481	183.9989	98523	72562	72571	174.6508	98361	*01650	*01661	166.2065	98190	19
43	43958	43966	183.8349	98521	73047	73056	174.5030	98358	*02135	*02146	166.0727	98187	18
44	44443	44451	183.6712	98518	73531	73541	174.3555	98355	*02620	*02631	165.9391	98184	17
45	44928	44936	183.5078	98515	74016	74026	174.2082	98353	*03105	*03116	165.8057	98181	16
46	45413	45421	183.3447	98513	74501	74511	174.0612	98350	*03589	*03600	165.6725	98178	15
47	45897	45906	183.1818	98510	74986	74995	173.9144	98347	*04074	*04085	165.5396	98175	14
48	46382	46390	183.0193	98507	75471	75480	173.7679	98344	*04559	*04570	165.4068	98173	13
49	46867	46875	182.8570	98505	75955	75965	173.6217	98341	*05044	*05055	165.2743	98170	12
50	47352	47360	182.6951	98502	76440	76450	173.4756	98339	*05529	*05540	165.1419	98167	11
51	47837	47845	182.5334	98499	76925	76935	173.3298	98336	*06013	*06025	165.0098	98164	10
52	48322	48330	182.3720	98497	77410	77420	173.1843	98333	*06498	*06509	164.8779	98161	9
53	48806	48815	182.2109	98494	77895	77904	173.0390	98330	*06983	*06994	164.7462	98158	8
54	49291	49299	182.0501	98491	78379	78389	172.8940	98327	*07468	*07479	164.6147	98155	7
55	49776	49784	181.8895	98489	78864	78874	172.7492	98325	*07953	*07964	164.4835	98152	6
56	50261	50269	181.7293	98486	79349	79359	172.6046	98322	*08437	*08448	164.3524	98149	5
57	50746	50754	181.5693	98483	79834	79844	172.4603	98319	*08922	*08933	164.2215	98146	4
58	51230	51239	181.4096	98481	80319	80328	172.3162	98316	*09407	*09418	164.0909	98143	3
59	51715	51724	181.2502	98478	80804	80813	172.1724	98313	*09892	*09903	163.9605	98140	2
60	52200	52208	181.0911	98475	81288	81298	172.0288	98311	*10377	*10388	163.8302	98137	1
	52685	52693	180.9322	98473	81773	81783	171.8854	98308	*10861	*10873	163.7002	98134	0
	0.005	0.005		0.999	0.005	0.005		0.999	*0.006	*0.006		0.999	
	cos	ctg	tg	sin	cos	ctg	tg	sin	cos	ctg	tg	sin	
	484	485	1589	3	484	485	1434	3	484	485	1300	3	

89° 41'

89° 40'

89° 39'

0° 21'

0° 22'

0° 23'

	485	484	1298	2	485	484	1183	3	485	484	1082	3	
"	sin	tg	ctg	cos	sin	tg	ctg	cos	sin	tg	ctg	cos	"
	0.006	0.006		0.999	0.006	0.006		0.999	0.006	0.006		0.999	
0	10861	10873	163.7002	98134	39950	39963	156.2591	97952	69038	69053	149.4650	97762	60
1	11346	11358	163.5704	98131	40434	40448	156.1408	97949	69523	69538	149.3568	97759	59
2	11831	11843	163.4408	98128	40919	40932	156.0227	97946	70007	70023	149.2487	97755	58
3	12316	12327	163.3113	98125	41404	41417	155.9047	97943	70492	70507	149.1408	97752	57
4	12801	12812	163.1821	98122	41889	41902	155.7870	97940	70977	70992	149.0330	97749	56
5	13285	13297	163.0531	98119	42374	42387	155.6694	97937	71462	71477	148.9254	97746	55
6	13770	13782	162.9243	98116	42859	42872	155.5520	97934	71947	71962	148.8180	97742	54
7	14255	14267	162.7957	98113	43343	43357	155.4348	97931	72432	72447	148.7107	97739	53
8	14740	14751	162.6674	98110	43828	43841	155.3177	97927	72916	72932	148.6035	97736	52
9	15225	15236	162.5392	98107	44313	44326	155.2009	97924	73401	73416	148.4965	97733	51
10	15709	15721	162.4112	98104	44798	44811	155.0842	97921	73886	73901	148.3897	97729	50
11	16194	16206	162.2834	98102	45283	45296	154.9677	97918	74371	74386	148.2830	97726	49
12	16679	16691	162.1558	98099	45767	45781	154.8513	97915	74856	74871	148.1765	97723	48
13	17164	17176	162.0284	98096	46252	46266	154.7351	97912	75340	75355	148.0701	97720	47
14	17649	17660	161.9012	98093	46737	46750	154.6191	97909	75825	75841	147.9639	97716	46
15	18134	18145	161.7743	98090	47222	47235	154.5033	97905	76310	76325	147.8578	97713	45
16	18618	18630	161.6475	98087	47707	47720	154.3877	97902	76795	76810	147.7519	97710	44
17	19103	19115	161.5209	98084	48191	48205	154.2722	97899	77280	77295	147.6461	97706	43
18	19588	19600	161.3945	98081	48676	48690	154.1569	97896	77764	77780	147.5405	97703	42
19	20073	20085	161.2683	98078	49161	49175	154.0418	97893	78249	78265	147.4351	97700	41
20	20558	20569	161.1423	98075	49646	49659	153.9268	97890	78734	78750	147.3297	97697	40
21	21042	21054	161.0165	98072	50131	50144	153.8120	97887	79219	79234	147.2246	97693	39
22	21527	21539	160.8909	98069	50615	50629	153.6974	97883	79704	79719	147.1196	97690	38
23	22012	22024	160.7655	98065	51100	51114	153.5829	97880	80188	80204	147.0147	97687	37
24	22497	22509	160.6403	98062	51585	51599	153.4687	97877	80673	80689	146.9100	97683	36
25	22982	22994	160.5153	98059	52070	52084	153.3546	97874	81158	81174	146.8054	97680	35
26	23466	23478	160.3905	98056	52555	52568	153.2406	97871	81643	81659	146.7010	97677	34
27	23951	23963	160.2658	98053	53039	53053	153.1269	97868	82128	82143	146.5967	97673	33
28	24436	24448	160.1414	98050	53524	53538	153.0133	97865	82612	82628	146.4926	97670	32
29	24921	24933	160.0172	98047	54009	54023	152.8998	97861	83097	83113	146.3886	97667	31
30	25406	25418	159.8931	98044	54494	54508	152.7866	97858	83582	83598	146.2848	97664	30
31	25890	25903	159.7693	98041	54979	54993	152.6735	97855	84067	84083	146.1811	97660	29
32	26375	26387	159.6456	98038	55463	55477	152.5605	97852	84552	84568	146.0776	97657	28
33	26860	26872	159.5221	98035	55948	55962	152.4478	97849	85036	85052	145.9742	97654	27
34	27345	27357	159.3988	98032	56433	56447	152.3352	97845	85521	85537	145.8710	97650	26
35	27830	27842	159.2757	98029	56918	56932	152.2228	97842	86006	86022	145.7679	97647	25
36	28314	28327	159.1528	98026	57403	57417	152.1105	97839	86491	86507	145.6649	97644	24
37	28799	28812	159.0301	98023	57887	57902	151.9984	97836	86976	86992	145.5621	97640	23
38	29284	29296	158.9076	98020	58372	58386	151.8865	97833	87460	87477	145.4595	97637	22
39	29769	29781	158.7853	98017	58857	58871	151.7747	97830	87945	87961	145.3570	97634	21
40	30254	30266	158.6631	98014	59342	59356	151.6631	97826	88430	88446	145.2546	97630	20
41	30738	30751	158.5412	98011	59827	59841	151.5517	97823	88915	88931	145.1524	97627	19
42	31223	31236	158.4194	98008	60311	60326	151.4404	97820	89400	89416	145.0503	97624	18
43	31708	31721	158.2978	98005	60796	60811	151.3293	97817	89884	89901	144.9484	97620	17
44	32193	32205	158.1764	98002	61281	61296	151.2183	97814	90369	90386	144.8466	97617	16
45	32678	32690	158.0552	97999	61766	61780	151.1075	97810	90854	90870	144.7449	97614	15
46	33162	33175	157.9342	97996	62251	62265	150.9969	97807	91339	91355	144.6434	97610	14
47	33647	33660	157.8133	97992	62735	62750	150.8865	97804	91824	91840	144.5421	97607	13
48	34132	34145	157.6927	97989	63220	63235	150.7762	97801	92308	92325	144.4408	97604	12
49	34617	34630	157.5722	97986	63705	63720	150.6660	97797	92793	92810	144.3398	97600	11
50	35102	35114	157.4519	97983	64190	64205	150.5560	97794	93278	93295	144.2388	97597	10
51	35586	35599	157.3318	97980	64675	64689	150.4462	97791	93763	93780	144.1380	97593	9
52	36071	36084	157.2119	97977	65159	65174	150.3366	97788	94248	94264	144.0374	97590	8
53	36556	36569	157.0922	97974	65644	65659	150.2271	97785	94732	94749	143.9368	97587	7
54	37041	37054	156.9726	97971	66129	66144	150.1177	97781	95217	95234	143.8365	97583	6
55	37526	37539	156.8532	97968	66614	66629	150.0085	97778	95702	95719	143.7362	97580	5
56	38010	38023	156.7340	97965	67099	67114	149.8995	97775	96187	96204	143.6361	97577	4
57	38495	38508	156.6150	97962	67583	67598	149.7907	97772	96672	96689	143.5362	97573	3
58	38980	38993	156.4962	97959	68068	68083	149.6820	97768	97156	97173	143.4363	97570	2
59	39465	39478	156.3776	97955	68553	68568	149.5734	97765	97641	97658	143.3367	97566	1
60	39950	39963	156.2591	97952	69038	69053	149.4650	97762	98126	98143	143.2371	97563	0
	0.006	0.006		0.999	0.006	0.006		0.999	0.006	0.006		0.999	
	cos	ctg	tg	sin	cos	ctg	tg	sin	cos	ctg	tg	sin	"
	484	485	1185	4	484	485	1084	4	484	485	996	4	

89° 38'

89° 37'

89° 36'