附表 1

三角函數表

正弦真數表

本表 Cosine 的求法

$\cos\alpha = \sin(90^\circ - \alpha)$

例 $\cos 79^\circ 28' = \sin(90^\circ - 79^\circ 28')$

$= \sin 10^\circ 32' = 0.1822 + 0.0006 = 0.1828$

度 \ 分	0′	10′	20′	30′	40′	50′	1′	2′	3′	4′	5′	6′	7′	8′	9′
0	0.0000	0.0029	0.0058	0.0087	0.0116	0.0145	3	6	9	12	15	17	20	23	26
1	.0175	.0204	.0233	.0262	.0291	.0320	3	6	9	12	15	17	20	23	26
2	.0349	.0378	.0407	.0436	.0465	.0494	3	6	9	12	15	17	20	23	26
3	.0523	.0552	.0581	.0610	.0640	.0669	3	6	9	12	15	17	20	23	26
4	.0698	.0727	.0756	.0785	.0814	.0843	3	6	9	12	15	17	20	23	26
5	.0872	.0901	.0929	.0958	.0987	.1016	3	6	9	12	14	17	20	23	26
6	.1045	.1074	.1103	.1132	.1161	.1190	3	6	9	12	14	17	20	23	26
7	.1219	.1248	.1276	.1305	.1334	.1363	3	6	9	12	14	17	20	23	26
8	.1392	.1421	.1449	.1478	.1507	.1536	3	6	9	12	14	17	20	23	26
9	.1564	.1593	.1622	.1650	.1679	.1708	3	6	9	12	14	17	20	23	26
10	.1736	.1765	.1794	.1822	.1851	.1880	3	6	9	12	14	17	20	23	26
11	.1908	.1937	.1965	.1994	.2022	.2051	3	6	9	11	14	17	20	23	26
12	.2079	.2108	.2136	.2164	.2193	.2221	3	6	9	11	14	17	20	23	26
13	.2250	.2278	.2306	.2334	.2363	.2391	3	6	8	11	14	17	20	23	25
14	.2419	.2447	.2476	.2504	.2532	.2560	3	6	8	11	14	17	20	23	25

分 / 度	0′	10′	20′	30′	40′	50′	1′	2′	3′	4′	5′	6′	7′	8′	9′
15	0.2588	0.2616	0.2644	0.2672	0.2700	0.2728	3	6	8	11	14	17	20	22	25
16	.2756	.2784	.2812	.2840	.2868	.2896	3	6	8	11	14	17	20	22	25
17	.2924	.2952	.2979	.3007	.3035	.3062	3	6	8	11	14	17	19	22	25
18	.3090	.3118	.3145	.3173	.3201	.3228	3	6	8	11	14	17	19	22	25
19	.3256	.3283	.3311	.3338	.3365	.3393	3	5	8	11	14	16	19	22	25
20	.3420	.3448	.3475	.3502	.3529	.3557	3	5	8	11	14	16	19	22	25
21	.3584	.3611	.3638	.3665	.3692	.3719	3	5	8	11	14	16	19	22	24
22	.3746	.3773	.3800	.3827	.3854	.3881	3	5	8	11	14	16	19	21	24
23	.3907	.3934	.3961	.3987	.4014	.4041	3	5	8	11	14	16	19	21	24
24	.4067	.4094	.4120	.4147	.4173	.4200	3	5	8	11	13	16	19	21	24
25	.4226	.4253	.4279	.4305	.4331	.4358	3	5	8	11	13	16	18	21	24
26	.4384	.4410	.4436	.4462	.4488	.4514	3	5	8	10	13	16	18	21	23
27	.4540	.4566	.4592	.4617	.4643	.4669	3	5	8	10	13	15	18	21	23
28	.4695	.4720	.4746	.4772	.4797	.4823	3	5	8	10	13	15	18	20	23
29	.4848	.4874	.4899	.4924	.4950	.4975	3	5	8	10	13	15	18	20	23
30	.5000	.5025	.5050	.5075	.5100	.5125	3	5	8	10	13	15	18	20	23
31	.5150	.5175	.5200	.5225	.5250	.5275	2	5	7	10	12	15	17	20	22
32	.5299	.5324	.5348	.5373	.5398	.5422	2	5	7	10	12	15	17	20	22
33	.5446	.5471	.5495	.5519	.5544	.5568	2	5	7	10	12	15	17	19	22
34	.5592	.5616	.5640	.5664	.5688	.5712	2	5	7	10	12	14	17	19	22
35	.5736	.5760	.5783	.5807	.5831	.5854	2	5	7	10	12	14	17	19	21
36	.5878	.5901	.5925	.5948	.5972	.5995	2	5	7	9	12	14	16	19	21
37	.6018	.6041	.6065	.6088	.6111	.6134	2	5	7	9	12	14	16	18	21
38	.6157	.6180	.6202	.6225	.6248	.6271	2	5	7	9	11	14	16	18	20
39	.6293	.6316	.6338	.6361	.6383	.6406	2	4	7	9	11	13	16	18	20

° \ ′	0′	10′	20′	30′	40′	50′	1′	2′	3′	4′	5′	6′	7′	8′	9′
40	0·6428	0·6450	0·6472	0·6494	0·6517	0·6539	2	4	7	9	11	13	15	18	20
41	·6561	·6583	·6604	·6626	·6648	·6670	2	4	7	9	11	13	15	17	20
42	·6691	·6713	·6734	·6756	·6777	·6799	2	4	6	9	11	13	15	17	19
43	·6820	·6841	·6862	·6884	·6905	·6926	2	4	6	8	11	13	15	17	19
44	·6947	·6967	·6988	·7009	·7030	·7050	2	4	6	8	10	12	14	17	19
45	·7071	·7092	·7112	·7133	·7153	·7173	2	4	6	8	10	12	14	16	18
46	·7193	·7214	·7234	·7254	·7274	·7294	2	4	6	8	10	12	14	16	18
47	·7314	·7333	·7353	·7373	·7392	·7412	2	4	6	8	10	12	14	16	18
48	·7431	·7451	·7470	·7490	·7509	·7528	2	4	6	8	10	12	13	15	17
49	·7547	·7566	·7585	·7604	·7623	·7642	2	4	6	8	9	11	13	15	17
50	·7660	·7679	·7698	·7716	·7735	·7753	2	4	6	7	9	11	13	15	17
51	·7771	·7790	·7808	·7826	·7844	·7862	2	4	5	7	9	11	13	14	16
52	·7880	·7898	·7916	·7934	·7951	·7969	2	4	5	7	9	11	12	14	16
53	·7986	·8004	·8021	·8039	·8056	·8073	2	3	5	7	9	10	12	14	16
54	·8090	·8107	·8124	·8141	·8158	·8175	2	3	5	7	8	10	12	13	15
55	·8192	·8208	·8225	·8241	·8258	·8274	2	3	5	7	8	10	12	13	15
56	·8290	·8307	·8323	·8339	·8355	·8371	2	3	5	6	8	10	11	13	14
57	·8387	·8403	·8418	·8434	·8450	·8465	2	3	5	6	8	9	11	12	14
58	·8480	·8496	·8511	·8526	·8542	·8557	2	3	5	6	8	9	11	12	14
59	·8572	·8587	·8601	·8616	·8631	·8646	1	3	4	6	7	9	10	12	13
60	·8660	·8675	·8689	·8704	·8718	·8732	1	3	4	6	7	9	10	11	13
61	·8746	·8760	·8774	·8788	·8802	·8816	1	3	4	6	7	8	10	11	12
62	·8829	·8843	·8857	·8870	·8884	·8897	1	3	4	5	7	8	9	11	12
63	·8910	·8923	·8936	·8949	·8962	·8975	1	3	4	5	6	8	9	10	12
64	·8988	·9001	·9013	·9026	·9038	·9051	1	3	4	5	6	8	9	10	11

度 \ 分	0′	10′	20′	30′	40′	50′	1′	2′	3′	4′	5′	6′	7′	8′	9′
65	0.9063	0.9075	0.9088	0.9100	0.9112	0.9124	1	2	4	5	6	7	8	10	11
66	.9135	.9147	.9159	.9171	.9182	.9194	1	2	3	5	6	7	8	9	10
67	.9205	.9216	.9228	.9239	.9250	.9261	1	2	3	4	6	7	8	9	10
68	.9272	.9283	.9293	.9304	.9315	.9325	1	2	3	4	5	6	7	9	10
69	.9336	.9346	.9356	.9367	.9377	.9387	1	2	3	4	5	6	7	8	9
70	.9397	.9407	.9417	.9426	.9436	.9446	1	2	3	4	5	6	7	8	9
71	.9455	.9465	.9474	.9483	.9492	.9502	1	2	3	4	5	6	6	7	8
72	.9511	.9520	.9528	.9537	.9546	.9555	1	2	3	4	4	5	6	7	8
73	.9563	.9572	.9580	.9588	.9596	.9605	1	2	2	3	4	5	6	7	7
74	.9613	.9621	.9628	.9636	.9644	.9652	1	2	2	3	4	5	5	6	7
75	.9659	.9667	.9674	.9681	.9689	.9696	1	1	2	3	4	4	5	6	7
76	.9703	.9710	.9717	.9724	.9730	.9737	1	1	2	3	3	4	5	5	6
77	.9744	.9750	.9757	.9763	.9769	.9775	1	1	2	3	3	4	4	5	6
78	.9781	.9787	.9793	.9799	.9805	.9811	1	1	2	2	3	3	4	5	5
79	.9816	.9822	.9827	.9833	.9838	.9843	1	1	2	2	3	3	4	4	5
80	.9848	.9853	.9858	.9863	.9868	.9872	0	1	1	2	2	3	3	4	4
81	.9877	.9881	.9886	.9890	.9894	.9899	0	1	1	2	2	3	3	3	4
82	.9903	.9907	.9911	.9914	.9918	.9922	0	1	1	2	2	2	3	3	3
83	.9925	.9929	.9932	.9936	.9939	.9942	0	1	1	1	2	2	3	3	3
84	.9945	.9948	.9951	.9954	.9957	.9959	0	1	1	1	1	2	2	2	2
85	.9962	.9964	.9967	.9969	.9971	.9974	0	0	1	1	1	1	2	2	2
86	.9976	.9978	.9980	.9981	.9983	.9985	0	0	1	1	1	1	1	1	2
87	.9986	.9988	.9989	.9990	.9992	.9993	0	0	0	1	1	1	1	1	1
88	.9994	.9995	.9996	.9996	.9997	.9998	0	0	0	0	0	0	1	1	1
89	.9998	.9999	.9999	1.0000	1.0000	1.0000	0	0	0	0	0	0	0	0	0

正切眞數表

本表 Cotangent 的求法

$\cot \alpha = \tan (90° - \alpha)$

例 $\cot 50°10' = \tan (90° - 50°10')$

$= \tan 39°50' = 0.8342$

度 \ 分	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	1′	2′	3′	4′
0	0.0000	0.0015	0.0029	0.0044	0.0058	0.0073	0.0087	0.0102	0.0116	0.0131	0.0145	0.0160	3	6	9	12
1	.0175	.0189	.0204	.0218	.0233	.0247	.0262	.0276	.0291	.0305	.0320	.0335	3	6	9	12
2	.0349	.0364	.0378	.0393	.0407	.0422	.0437	.0451	.0466	.0480	.0495	.0509	3	6	9	12
3	.0524	.0539	.0553	.0568	.0582	.0597	.0612	.0626	.0641	.0655	.0670	.0685	3	6	9	12
4	.0699	.0714	.0729	.0743	.0758	.0772	.0787	.0802	.0816	.0831	.0846	.0860	3	6	9	12
5	.0875	.0890	.0904	.0919	.0934	.0948	.0963	.0978	.0992	.1007	.1022	.1036	3	6	9	12
6	.1051	.1066	.1080	.1095	.1110	.1125	.1139	.1154	.1169	.1184	.1198	.1213	3	6	9	12
7	.1228	.1243	.1257	.1272	.1287	.1302	.1317	.1331	.1346	.1361	.1376	.1391	3	6	9	12
8	.1405	.1420	.1435	.1450	.1465	.1480	.1495	.1509	.1524	.1539	.1554	.1569	3	6	9	12
9	.1584	.1599	.1614	.1629	.1644	.1658	.1673	.1688	.1703	.1718	.1733	.1748	3	6	9	12
10	.1763	.1778	.1793	.1808	.1823	.1838	.1853	.1868	.1883	.1899	.1914	.1929	3	6	9	12
11	.1944	.1959	.1974	.1989	.2004	.2019	.2035	.2050	.2066	.2080	.2095	.2110	3	6	9	12
12	.2126	.2141	.2156	.2171	.2186	.2202	.2217	.2232	.2247	.2263	.2278	.2293	3	6	9	12
13	.2309	.2324	.2339	.2355	.2370	.2386	.2401	.2416	.2432	.2447	.2462	.2478	3	6	9	12
14	.2493	.2509	.2524	.2540	.2556	.2571	.2586	.2602	.2617	.2633	.2648	.2664	3	6	9	12

°	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	1′ 2′	3′ 4′
15	0.2679	0.2695	0.2711	0.2728	0.2742	0.2758	0.2773	0.2789	0.2805	0.2820	0.2836	0.2852	3 6	9 13
16	.2867	.2883	.2899	.2915	.2931	.2946	.2962	.2978	.2994	.3010	.3026	.3041	3 6	9 13
17	.3057	.3073	.3089	.3105	.3121	.3137	.3153	.3169	.3185	.3201	.3217	.3233	3 6	10 13
18	.3249	.3265	.3281	.3298	.3314	.3330	.3346	.3362	.3378	.3395	.3411	.3427	3 6	10 13
19	.3443	.3460	.3476	.3492	.3508	.3525	.3541	.3558	.3574	.3590	.3607	.3623	3 6	10 13
20	.3640	.3656	.3673	.3689	.3706	.3722	.3739	.3755	.3772	.3789	.3805	.3822	3 7	10 13
21	.3839	.3855	.3872	.3889	.3906	.3922	.3939	.3956	.3973	.3990	.4006	.4023	3 7	10 13
22	.4040	.4057	.4074	.4091	.4108	.4125	.4142	.4159	.4176	.4193	.4210	.4228	3 7	10 14
23	.4245	.4262	.4279	.4296	.4314	.4331	.4348	.4365	.4383	.4400	.4417	.4435	3 7	10 14
24	.4452	.4470	.4487	.4505	.4522	.4540	.4557	.4575	.4592	.4610	.4628	.4645	4 7	10 14
25	.4663	.4681	.4699	.4716	.4734	.4752	.4770	.4788	.4806	.4823	.4841	.4859	4 7	11 14
26	.4877	.4895	.4913	.4931	.4950	.4968	.4986	.5004	.5022	.5040	.5059	.5077	4 7	11 15
27	.5095	.5114	.5132	.5150	.5169	.5187	.5206	.5224	.5243	.5261	.5280	.5298	4 7	11 15
28	.5317	.5336	.5354	.5373	.5392	.5411	.5430	.5448	.5467	.5486	.5505	.5524	4 8	11 15
29	.5543	.5562	.5581	.5600	.5619	.5639	.5658	.5677	.5696	.5715	.5735	.5754	4 8	12 15
30	.5774	.5793	.5812	.5832	.5851	.5871	.5890	.5910	.5930	.5949	.5969	.5989	4 8	12 16
31	.6009	.6028	.6048	.6068	.6088	.6108	.6128	.6148	.6168	.6189	.6209	.6228	4 8	12 16
32	.6249	.6269	.6289	.6310	.6330	.6350	.6371	.6391	.6412	.6432	.6453	.6473	4 8	12 16
33	.6494	.6515	.6536	.6556	.6577	.6598	.6619	.6640	.6661	.6682	.6703	.6724	4 8	13 17
34	.6745	.6766	.6787	.6809	.6830	.6851	.6873	.6894	.6916	.6937	.6959	.6980	4 9	13 17
35	.7002	.7024	.7046	.7067	.7089	.7111	.7133	.7155	.7177	.7199	.7221	.7243	4 9	13 18
36	.7265	.7288	.7310	.7332	.7355	.7377	.7400	.7422	.7445	.7467	.7490	.7513	5 9	14 18
37	.7536	.7559	.7581	.7604	.7627	.7650	.7673	.7696	.7720	.7743	.7766	.7789	5 9	14 18
38	.7813	.7836	.7860	.7883	.7907	.7931	.7954	.7978	.8002	.8026	.8050	.8074	5 10	14 19
39	.8098	.8122	.8146	.8170	.8195	.8219	.8243	.826[illegible]	.8292	.8317	.8342	.8366	5 10	15 20

度 \ 分	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	1′	2′	3′	4′
40	0·8391	0·8416	0·8441	0·8466	0·8491	0·8516	0·8541	0·8566	0·8591	0·8617	0·8642	0·8667	5	10	15	20
41	·8693	·8718	·8744	·8770	·8796	·8821	·8847	·8873	·8899	·8925	·8952	·8978	5	10	16	21
42	·9004	·9030	·9057	·9083	·9110	·9137	·9163	·9190	·9217	·9244	·9271	·9298	5	11	16	21
43	·9325	·9352	·9380	·9407	·9435	·9462	·9490	·9517	·9545	·9573	·9601	·9629	6	11	17	22
44	·9657	·9686	·9713	·9742	·9770	·9798	·9827	·9856	·9884	·9913	·9942	·9971	6	11	17	23
45	1·000	1·0029	1·0058	1·0088	1·0117	1·0147	1·0176	1·0206	1·0235	1·0265	1·0295	1·0325	6	12	18	24
46	1·035	·0385	·0416	·0446	·0477	·0507	·0538	·0569	·0599	·0630	·0661	·0692	6	12	18	25
47	1·072	·0755	·0786	·0818	·0850	·0881	·0913	·0945	·0977	·1009	·1041	·1074	6	13	19	25
48	1·111	·1139	·1171	·1204	·1237	·1270	·1303	·1336	·1369	·1403	·1436	·1470	7	13	20	26
49	1·150	·1538	·1571	·1606	·1640	·1674	·1708	·1743	·1778	·1812	·1847	·1882	7	14	21	28
50	1·192	·1953	·1988	·2024	·2059	·2095	·2131	·2167	·2203	·2239	·2276	·2312	7	14	22	29
51	1·235	·2386	·2423	·2460	·2497	·2534	·2572	·2609	·2647	·2685	·2723	·2761	8	15	23	30
52	1·280	·2839	·2876	·2915	·2954	·2993	·3032	·3072	·3111	·3151	·3190	·3230	8	16	24	31
53	1·327	·3311	·3351	·3392	·3432	·3473	·3514	·3555	·3597	·3638	·3680	·3722	8	16	25	33
54	1·376	·3806	·3848	·3891	·3934	·3976	·4019	·4063	·4106	·4150	·4193	·4237	9	17	26	34
55	1·428	·4326	·4370	·4415	·4460	·4505	·4550	·4596	·4641	·4687	·4733	·4779	9	18	27	36
56	1·483	·4872	·4919	·4966	·5013	·5061	·5109	·5156	·5204	·5253	·5301	·5350	10	19	29	38
57	1·540	·5448	·5497	·5547	·5597	·5647	·5697	·5747	·5798	·5849	·5900	·5952	10	20	30	40
58	1·600	·6055	·6107	·6160	·6212	·6265	·6319	·6372	·6426	·6479	·6534	·6588	11	21	32	43
59	1·664	·6698	·6753	·6808	·6864	·6920	·6977	·7033	·7090	·7147	·7205	·7262	11	23	34	45
60	1·732	·7379	·7437	·7496	·7556	·7615	·7675	·7735	·7796	·7856	·7917	·7979	12	24	36	48
61	1·804	·8103	·8165	·8228	·8291	·8354	·8418	·8482	·8546	·8611	·8676	·8741	13	26	38	51
62	1·881	·8873	·8940	·9007	·9074	·9142	·9210	·9278	·9347	·9416	·9486	·9556	14	27	41	55
63	1·963	·9697	·9768	·9840	·9912	·9984	2·0057	2·0130	2·0204	2·0278	2·0353	2·0428	15	29	44	58
64	2·050	2·0579	2·0655	2·0732	2·0809	2·0887	·0965	·1044	·1123	·1203	·1283	·1364	16	31	47	63

度 \ 分	0′	5′	10′	15′	20′	25′	30′	35′	40′	45′	50′	55′	1′	2′	3′	4′
65	2.144	2.1527	2.1609	2.1692	2.1775	2.1859	2.1943	2.2028	2.2113	2.2199	2.2286	2.2373	17	34	51	68
66	2.246	.2549	.2637	.2727	.2817	.2907	.2998	.3090	.3183	.3276	.3369	.3464	18	37	55	74
67	2.356	.3654	.3750	.3847	.3945	.4043	.4142	.4242	.4342	.4443	.4545	.4648	20	40	60	79
68	2.475	.4855	.4960	.5065	.5172	.5279	.5386	.5495	.5605	.5715	.5826	.5938	22	43	65	87
69	2.605	.6165	.6278	.6395	.6511	.6628	.6746	.6865	.6985	.7106	.7228	.7351	24	47	71	95
70	2.747	2.760	2.773	2.785	2.798	2.811	2.824	2.837	2.850	2.864	2.877	2.891	3	5	8	10
71	2.904	2.918	2.932	2 946	2.960	2.974	2.989	3 003	3.018	3.033	3.047	3.063	3	6	9	11
72	3.078	3.093	3.108	3.124	3.140	3.156	3.172	3.188	3.204	3.221	3.237	3.254	3	6	10	13
73	3.271	3.288	3.305	3.323	3.340	3.358	3.376	3.394	3.412	3.431	3.450	3.468	4	7	11	14
74	3.487	3.507	3.526	3.546	3.566	3.586	3.606	3.626	3.647	3.668	3.689	3.710	4	8	12	16
75	3.732	3.754	3.776	3.798	3.821	3.844	3.867	3.890	3.914	3.938	3.962	3.986	5	9	14	19
76	4.011	4.036	4.061	4.087	4.113	4.139	4.165	4.192	4.219	4.247	4.275	4.303	5	11	16	21
77	4.331	4.360	4.390	4.419	4.449	4.480	4.511	4.542	4.574	4.606	4.639	4.671	6	12	19	25
78	4.705	4.739	4.773	4.808	4.843	4.879	4.915	4.952	4.989	5.027	5.066	5.105	7	15	22	29
79	5.145	5.185	5.226	5.267	5.309	5.352	5.396	5.440	5.485	5.530	5.576	5.623	9	17	26	35
80	5.671	5.721	5.769	5.820	5.871	5.923	5.976	6.030	6.084	6.140	6.197	6.255				
81	6.314	6.374	6.435	6.497	6.561	6.625	6.691	6.758	6.827	6.897	6.968	7.041				
82	7.115	7.191	7.269	7.348	7.429	7.511	7.596	7.682	7.770	7.861	7.953	8.048				
83	8.144	8.243	8 345	8.449	8.556	8.665	8.777	8 892	9.010	9.131	9.255	9.383				
84	9.514	9.649	9.788	9.931	10.08	10.23	10.39	10.55	10.71	10.88	11.06	11.24				
85	11.43	11.62	11.83	12.03	12.25	12.47	12.71	12.95	13.20	13.46	13.73	14.01				
86	14.30	14.61	14.92	15.26	15.60	15.97	16.35	16.75	17.17	17.61	18.07	18.56				
87	19.08	19.63	20.21	20.82	21.47	22.16	22.90	23.69	24.54	25.45	26.43	27.49				
88	28.64	29 88	31.24	32.73	34.37	36.18	38.19	40.44	42.96	45 83	49.10	52.88				
89	57.29	62.50	68.75	76.39	85.94	98.22	114.6	137.5	171.9	229.2	343.8	687.5				

正割函数表

本表 Cosecant 的求法

$cosec\ \alpha = sec\ (90° - \alpha)$

例 $cosec\ 55°37' = sec\ (90° - 55°37')$

$= sec\ 34°23' = 1.2110 + .0007 = 1.2117$

度 \ 分	0′	10′	20′	30′	40′	50′	1′	2′	3′	4′	5′	6′	7′	8′	9′
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0001	0	0	0	0	0	0	0	0	0
1	1.0002	1.0002	1.0002	1.0003	1.0004	1.0005	0	0	0	0	0	0	0	0	1
2	1.0006	1.0007	1.0008	1.0009	1.0011	1.0012	0	0	0	1	1	1	1	1	1
3	1.0014	1.0015	1.0017	1.0019	1.0021	1.0022	0	0	1	1	1	1	1	1	1
4	1.0024	1.0027	1.0029	1.0031	1.0033	1.0036	0	0	1	1	1	1	2	2	2
5	1.0038	1.0041	1.0043	1.0046	1.0049	1.0052	0	1	1	1	1	2	2	2	3
6	1.0055	1.0058	1.0061	1.0065	1.0068	1.0072	0	1	1	1	2	2	2	3	3
7	1.0075	1.0079	1.0082	1.0086	1.0090	1.0094	0	1	1	2	2	2	3	3	4
8	1.0098	1.0102	1.0107	1.0111	1.0116	1.0120	0	1	1	2	2	3	3	4	4
9	1.0125	1.0129	1.0134	1.0139	1.0144	1.0149	1	1	2	2	3	3	4	4	5
10	1.0154	1.0160	1.0165	1.0170	1.0176	1.0181	1	1	2	2	3	3	4	5	5
11	1.0187	1.0193	1.0199	1.0205	1.0211	1.0217	1	1	2	2	3	4	4	5	5
12	1.0223	1.0230	1.0236	1.0243	1.0249	1.0256	1	1	2	3	3	4	5	5	6
13	1.0263	1.0270	1.0277	1.0284	1.0291	1.0299	1	1	2	3	4	4	5	6	7
14	1.0306	1.0314	1.0321	1.0329	1.0337	1.0345	1	2	2	3	4	5	6	6	7

度 \ 分	0′	10′	20′	30′	40′	50′	1′	2′	3′	4′	5′	6′	7′	8′	9′
15	1·0353	1·0361	1·0369	1·0377	1·0386	1·0394	1	2	3	3	4	5	6	7	8
16	1·0403	1·0412	1·0421	1·0429	1·0439	1·0448	1	2	3	4	5	5	6	7	8
17	1·0457	1·0466	1·0476	1·0486	1·0496	1·0505	1	2	3	4	5	6	7	8	9
18	1·0515	1·0525	1·0535	1·0545	1·0555	1·0566	1	2	3	4	5	6	7	8	9
19	1·0576	1·0587	1·0598	1·0608	1·0619	1·0631	1	2	3	4	6	7	8	9	10
20	1·0642	1·0653	1·0665	1·0676	1·0688	1·0700	1	2	4	5	6	7	8	9	10
21	1·0712	1·0724	1·0736	1·0748	1·0760	1·0773	1	2	4	5	6	7	9	10	11
22	1·0785	1·0798	1·0811	1·0824	1·0837	1·0850	1	3	4	5	7	8	9	11	12
23	1·0864	1·0877	1·0891	1·0904	1·0918	1·0932	1	3	4	5	7	8	10	11	13
24	1·0946	1·0961	1·0975	1·0989	1·1004	1·1019	1	3	4	6	7	9	10	12	13
25	1·1034	1·1049	1·1064	1·1079	1·1095	1·1110	2	3	5	6	8	9	11	12	14
26	1·1126	1·1142	1·1158	1·1174	1·1190	1·1207	2	3	5	7	8	10	12	13	15
27	1·1223	1·1240	1·1257	1·1274	1·1291	1·1308	2	3	5	7	9	10	12	14	16
28	1·1326	1·1343	1·1361	1·1379	1·1397	1·1415	2	4	5	7	9	11	13	15	16
29	1·1434	1·1452	1·1471	1·1490	1·1509	1·1528	2	4	6	8	10	11	13	15	17
30	1·1547	1·1566	1·1586	1·1606	1·1626	1·1646	2	4	6	8	10	12	14	16	18
31	1·1666	1·1687	1·1707	1·1728	1·1749	1·1770	2	4	6	8	11	13	15	17	19
32	1·1792	1·1813	1·1835	1·1857	1·1879	1·1901	2	4	7	9	11	13	16	18	20
33	1·1924	1·1946	1·1969	1·1992	1·2015	1·2039	2	5	7	9	12	14	16	19	21
34	1·2062	1·2086	1·2110	1·2134	1·2158	1·2183	2	5	7	10	12	15	17	20	22
35	1·2208	1·2233	1·2258	1·2283	1·2309	1·2335	3	5	8	10	13	15	18	21	23
36	1·2361	1·2387	1·2413	1·2440	1·2467	1·2494	3	5	8	11	14	16	19	22	24
37	1·2521	1·2549	1·2577	1·2605	1·2633	1·2661	3	6	9	11	14	17	20	23	26
38	1·2690	1·2719	1·2748	1·2778	1·2807	1·2837	3	6	9	12	15	18	21	24	27
39	1·2868	1·2898	1·2929	1·2960	1·2991	1·3022	3	6	9	13	16	19	22	25	28

度 \ 分	0′	10′	20′	30′	40′	50′	1′	2′	3′	4′	5′	6′	7′	8′	9′
40	1·3054	1·3086	1·3118	1·3151	1·3184	1·3217	3	7	10	13	17	20	23	26	30
41	1·3250	1·3284	1·3318	1·3352	1·3386	1·3421	3	7	10	14	17	21	24	28	31
42	1·3456	1·3492	1·3527	1·3563	1·3600	1·3636	4	7	11	15	18	22	26	29	33
43	1·3673	1·3711	1·3748	1·3786	1·3824	1·3863	4	8	12	15	19	23	27	31	35
44	1·3902	1·3941	1·3980	1·4020	1·4061	1·4101	4	8	12	16	20	24	28	32	37
45	1·4142	1·4183	1·4225	1·4267	1·4310	1·4352	4	9	13	17	21	25	30	34	39
46	1·4396	1·4439	1·4483	1·4527	1·4572	1·4617	5	9	14	18	23	27	32	36	41
47	1·4663	1·4709	1·4755	1·4802	1·4849	1·4897	5	10	14	19	24	29	33	38	42
48	1·4945	1·4993	1·5042	1·5092	1·5141	1·5192	5	10	15	20	25	30	35	40	45
49	1·5243	1·5294	1·5345	1·5398	1·5450	1·5504	5	11	16	21	27	32	37	43	48
50	1·5557	1·5611	1·5666	1·5721	1·5777	1·5833	6	11	17	23	28	34	39	45	51
51	1·5890	1·5948	1·6005	1·6064	1·6123	1·6183	6	12	18	24	30	36	42	48	54
52	1·6243	1·6303	1·6365	1·6427	1·6489	1·6553	6	13	19	25	32	38	44	51	57
53	1·6616	1·6681	1·6746	1·6812	1·6878	1·6945	7	13	20	27	34	40	47	54	60
54	1·7013	1·7081	1·7151	1·7220	1·7291	1·7362	7	14	21	29	36	43	50	57	64
55	1·7434	1·7507	1·7581	1·7655	1·7730	1·7806	8	15	23	30	38	46	53	61	68
56	1·7883	1·7960	1·8039	1·8118	1·8198	1·8279	8	16	24	32	40	49	57	65	73
57	1·8361	1·8443	1·8528	1·8612	1·8697	1·8783	9	17	26	35	43	52	60	69	78
58	1·8871	1·8959	1·9048	1·9139	1·9230	1·9323	9	18	28	37	46	55	65	74	83
59	1·9416	1·9511	1·9606	1·9703	1·9801	1·9900	10	20	30	40	50	59	69	79	89
60	2·0000	2·0101	2·0204	2·0308	2·0413	2·0519	11	21	32	43	53	64	74	85	96
61	2·0627	2·0736	2·0846	2·0957	2·1070	2·1185	11	23	34	46	57	69	80	91	103
62	2·1301	2·1418	2·1538	2·1657	2·1779	2·1902	12	25	37	49	62	74	86	99	111
63	2·2027	2·2153	2·2282	2·2412	2·2543	2·2677	13	27	40	53	67	80	93	107	120
64	2·2812	2·2949	2·3088	2·3228	2·3371	2·3515	14	29	43	58	72	87	101	116	130

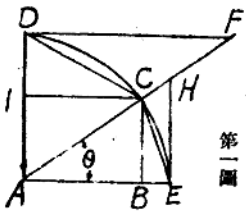
度＼分	0′	10′	20′	30′	40′	50′	1′	2′	3′	4′	5′	6′	7′	8′	9′
65	2·3662	2·3811	2·3961	2·4114	2·4269	2·4426	16	31	47	63	79	94	110	126	142
66	2·4586	2·4748	2·4912	2·5078	2·5247	2·5419	17	34	51	69	86	103	120	137	154
67	2·5593	2·5770	2·5949	2·6131	2·6316	2·6504	19	38	56	75	94	113	131	150	169
68	2·6695	2·6888	2·7085	2·7285	2·7488	2·7695	21	41	62	83	103	124	144	165	186
69	2·7904	2·8117	2·8334	2·8554	2·8779	2·9006	23	46	68	91	114	137	159	182	205
70	2·9238	2·9474	2·9713	2·9957	3·0206	3·0458	26	53	79	105	131	158	184	210	236
71	3·0716	3·0977	3·1244	3·1515	3·1792	3·2074	28	56	85	113	141	169	197	225	254
72	3·2364	3·2653	3·2951	3·3255	3·3565	3·3881	32	63	95	126	158	190	221	253	284
73	3·4203	3·4532	3·4867	3·5209	3·5559	3·5915	36	71	107	143	178	214	250	286	321
74	3·6280	3·6652	3·7032	3·7429	3·7817	3·8222	41	81	122	162	203	243	284	325	365
75	3·8637	3·9061	3·9495	3·9939	4·0394	4·0859	47	93	140	186	233	279	326	372	419
76	4·1336	4·1824	4·2324	4·2837	4·3362	4·3901	54	107	161	214	268	322	375	429	482
77	4·4454	4·5022	4·5604	4·6202	4·6817	4·7448	64	128	192	256	320	384	448	512	576
78	4·8097	4·8765	4·9452	5·0159	5·0886	5·1636	75	150	225	300	375	450	525	600	675
79	5·2408	5·3205	5·4026	5·4874	5·5749	5·6653	90	181	271	362	452	542	633	723	814
80	5·7588	5·8554	5·9554	6·0589	6·1661	6·2772	109	218	327	437	546	655	764	873	982
81	6·3925	6·5121	6·6363	6·7655	6·8998	7·0396	137	274	411	548	685	822	959	—	—
82	7·1830	7·3372	7·4957	7·6613	7·8344	8·0156	173	346	519	693	866	—	—	—	—
83	8·2055	8·4047	8·6139	8·8337	9·0652	9·3092	231	463	694	926	—	—	—	—	—
84	9·5668	9·8391	10·1275	10·4334	10·7585	11·1045	325	650	975	—	—	—	—	—	—
85	11·4737	11·8684	12·2913	12·7455	13·2347	13·7631									
86	14·3356	14·9579	15·6268	16·3804	17·1984	18·1026									
87	19·1073	20·2303	21·4937	22·9256	24·5621	26·4505									
88	28·6537	31·2576	34·3423	38·2016	42·9757	49·1141									
89	57·2987	68·7574	85·9456	114·5930	171·8883	343·7752									

度	每一分之差					
	0′～10′	10′～20′	20′～30′	30′～40′	40′～50′	50′～60′
85	395	424	454	490	523	572
86	622	679	744	818	904	1006
87	1121	1263	1422	1617	1883	2253
88	2944	3125	3319	4774	5138	8185
89	1 1459	1 7188	2 3647	5 7215	17 1896	—

附表2

三角公式

三角函數



第一圖

AE = AC = R

BC = $sin\theta$　　AB = $cosin\theta$

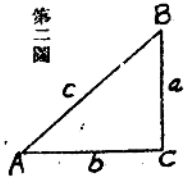
EH = $tan\theta$　　DF = $cot\theta$

AH = $sec\theta$　　AF = $cosec\theta$

BE = $vers\theta$　　I = $covers\theta$

CH = $exsec\theta$　　CF = $coexsec\theta$

CE = $chord\theta$　　CD = $cochord\theta$



第二圖

1. $sinA = \frac{a}{c}$　　4. $cosecA = \frac{c}{a}$

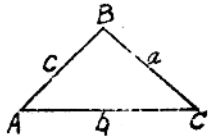
2. $cosA = \frac{b}{c}$　　5. $secA = \frac{c}{b}$

3. $tanA = \frac{a}{b}$　　6. $cotA = \frac{b}{a}$

直角三角形解法

	已知值	求	公式
7.	a.c	A.B.b	$sinA = \frac{a}{c}$, $cosB = \frac{a}{c}$, $b = \sqrt{(c+a)(c-a)}$,
8.	a.b	A.B.c	$tanA = \frac{a}{b}$, $cotB = \frac{a}{b}$, $c = \sqrt{a^2+b^2}$
9.	A.a	B.b.c	$B = 90° - A$, $b = a\,cotA$, $c = \frac{a}{sinA}$
10.	A.b	B.a.c	$B = 90° - A$, $a = b\,tanA$, $c = \frac{a}{cosA}$
11.	A.c	B.a.b	$B = 90° - A$, $a = c\,sinA$, $b = cosA$,

斜三角形解法



第三圖

	已知值	求	公式
1	A.B.a	C.b.c	$C = 180° - (A+B)$, $b = \frac{a}{sinA}sinB$,

	已知值	求	公　　式
			$c = \frac{a}{\sin A}\sin(A+B)$
2.	A a b	B.C.c.	$\sin B = \frac{\sin A}{a}b$. $C = 180° - (A+B)$.
			$C = \frac{a}{\sin A}\sin C$.
3.	C a b.	$\frac{1}{2}(A+B)$	$\frac{1}{2}(A+B) = 90° - \frac{1}{2}C$
4.		$\frac{1}{2}(A-B)$	$\tan\frac{1}{2}(A-B) = \frac{a-b}{a+b}\tan\frac{1}{2}(A+B)$.
5.		A. B	$A = \frac{1}{2}(A+B) + \frac{1}{2}(A-B)$ $B = \frac{1}{2}(A+B) - \frac{1}{2}(A-B)$
6.		C	$C = (a+b)\frac{\cos\frac{1}{2}(A+B)}{\cos\frac{1}{2}(A-B)} = (a-b)\frac{\sin\frac{1}{2}(A+B)}{\sin\frac{1}{2}(A-B)}$
7.		area	$K = \frac{1}{2}ab\sin C$
8.	a b c.	A	$let\ s = \frac{1}{2}(a+b+c)$; $\sin\frac{1}{2}A = \sqrt{\frac{(s-b)(s-c)}{bc}}$
9.			$\cos\frac{1}{2}A = \sqrt{\frac{s(s-a)}{bc}}$ $\tan\frac{1}{2}A = \sqrt{\frac{(s-b)(s-c)}{s(s-a)}}$
10.			$\sin A = \frac{2\sqrt{s(s-a)(s-b)(s-c)}}{bc}$
			$vers\,A = \frac{2(s-b)(s-c)}{bc}$
11.		area	$K = \sqrt{s(s-a)(s-b)(s-c)}$
12.	A.B.C a.	area	$K = \frac{a^2\sin B.\sin C}{2\sin A}$

三　角　法　公　式

1.	$\sin A =$	$\frac{1}{cosec\,A} = \sqrt{\frac{1}{2}(1-\cos^2 A)} = \tan A\cos A$
2.	$\sin A =$	$2\sin\frac{1}{2}A\cos\frac{1}{2}A = vers\,A\cot\frac{1}{2}A$
3.	$\sin A =$	$\sqrt{\frac{1}{2}vers\,2A} = \sqrt{\frac{1}{2}(1-\cos 2A)}$
4.	$\cos A =$	$\frac{1}{\sec A} = \sqrt{1-\sin^2 A} = \cot A\sin A$
5.	$\cos A =$	$1 - vers\,A = 2\cos^2\frac{1}{2}A - 1 = 1 - 2\sin^2\frac{1}{2}A$
6.	$\cos A =$	$\cos^2\frac{1}{2}A - \sin^2\frac{1}{2}A = \sqrt{\frac{1}{2} + \frac{1}{2}\cos^2 A}$
7.	$\tan A =$	$\frac{1}{\cot A} = \frac{\sin A}{\cos A} = \sqrt{\sec^2 A - 1}$
8.	$\tan A =$	$\sqrt{\frac{1}{\cos^2 A} - 1} = \sqrt{\frac{1-\cos^2 A}{\cos A}} = \frac{\sin 2A}{1+\cos 2A}$
9.	$\tan A =$	$\frac{1-\cos 2A}{\sin 2A} = \frac{vers\,2A}{\sin 2A} = exsec\,A\cot\frac{1}{2}A$