
ตาราง

ตารางที่ 1

ตารางค่าฟังก์ชันตรีโกณมิติ

0°

1°

	sin	tan	cot	cos	
0	.00000	.00000	∞	1.0000	60
1	029	029	3437.7	000	59
2	058	058	1718.9	000	58
3	087	087	1145.9	000	57
4	116	116	859.44	000	56
5	.00145	.00145	687.55	1.0000	55
6	175	175	572.96	900	54
7	204	204	491.11	000	53
8	233	233	429.72	000	52
9	262	262	381.97	000	51
10	.00291	.00291	343.77	1.0000	50
11	320	320	312.52	.99999	49
12	349	349	286.48	999	48
13	378	378	264.44	999	47
14	407	407	245.55	999	46
15	.00436	.00436	229.18	.99999	45
16	465	465	214.86	999	44
17	495	495	202.22	999	43
18	524	524	190.98	999	42
19	553	553	180.93	998	41
20	.00582	.00582	171.89	.99998	40
21	611	611	153.70	998	39
22	640	640	156.26	998	38
23	669	669	149.47	998	37
24	698	698	143.24	998	36
25	.00727	.00727	137.51	.99997	35
26	756	756	132.22	997	34
27	785	785	127.32	997	33
28	814	815	122.77	997	32
29	844	844	118.54	996	31
30	.00873	.00873	114.59	.99996	30
31	902	902	110.89	996	29
32	931	931	107.43	996	28
33	960	960	104.17	995	27
34	.00989	.00989	101.11	995	26
35	.01018	.01018	98.218	.99995	25
36	047	047	95.489	995	24
37	076	076	92.908	994	23
38	105	105	90.463	994	22
39	134	135	88.144	994	21
40	.01164	.01164	85.940	.99993	20
41	193	193	83.844	993	19
42	222	222	81.847	993	18
43	251	251	79.943	992	17
44	280	280	78.126	992	16
45	.01309	.01309	76.390	.99991	15
46	338	338	74.729	991	14
47	367	367	73.139	991	13
48	396	396	71.615	990	12
49	425	425	70.153	990	11
50	.01454	.01455	68.750	.99989	10
51	483	484	67.402	989	9
52	513	513	66.105	989	8
53	542	542	64.858	988	7
54	571	571	63.657	988	6
55	.01600	.01600	62.499	.99987	5
56	629	629	61.383	987	4
57	658	658	60.306	986	3
58	687	687	59.266	986	2
59	716	716	58.261	985	1
60	.01745	.01746	57.290	.99985	0

	sin	tan	cot	cos	
0	.01745	.01746	57.290	.99985	00
1	774	775	56.351	984	59
2	803	804	55.442	984	58
3	832	833	54.561	983	57
4	862	862	53.709	983	56
5	.01891	.01891	52.882	.99982	55
6	920	920	52.081	982	54
7	949	949	51.303	981	53
8	.01978	.01978	50.549	980	52
9	.02007	.02007	49.816	980	51
10	.02036	.02036	49.104	.99979	50
11	065	066	48.412	979	49
12	094	095	47.740	978	48
13	123	124	47.085	977	47
14	152	153	46.449	977	46
15	.02181	.02182	45.829	.99976	45
16	211	211	45.226	976	44
17	240	240	44.639	975	43
18	269	269	44.066	974	42
19	298	298	43.508	974	41
20	.02327	.02328	42.964	.99973	40
21	356	357	42.433	972	39
22	385	386	41.916	972	38
23	414	415	41.411	971	37
24	443	444	40.917	970	36
25	.02472	.02473	40.436	.99969	35
26	501	502	39.965	969	34
27	530	531	39.506	968	33
28	560	560	39.057	967	32
29	589	589	38.618	966	31
30	.02618	.02619	38.188	.99966	30
31	647	648	37.769	965	29
32	676	677	37.358	964	28
33	705	706	36.956	963	27
34	734	735	36.563	963	26
35	.02763	.02764	36.178	.99962	25
36	792	793	35.801	961	24
37	821	822	35.431	960	23
38	850	851	35.070	959	22
39	879	881	34.715	959	21
40	.02908	.02910	34.368	.99958	20
41	938	939	34.027	957	19
42	967	968	33.694	956	18
43	.02996	.02997	33.366	955	17
44	.03025	.03026	33.045	954	16
45	.03054	.03055	32.730	.99953	15
46	083	084	32.421	952	14
47	112	114	32.118	952	13
48	141	143	31.821	951	12
49	170	172	31.528	950	11
50	.03199	.03201	31.242	.99949	10
51	228	230	30.960	948	9
52	257	259	30.683	947	8
53	286	288	30.412	946	7
54	316	317	30.145	945	6
55	.03345	.03346	29.882	.99944	5
56	374	376	29.624	943	4
57	403	405	29.371	942	3
58	432	434	29.122	941	2
59	461	463	28.877	940	1
60	.03490	.03492	28.636	.99939	0

89°

91°

2°

	sin	tan	cot	cos	
0	.03490	.03492	28.636	.99939	60
1	519	521	.399	938	59
2	548	550	28.166	937	58
3	577	579	27.937	936	57
4	606	609	.712	935	56
5	.03635	.03638	27.490	.99934	55
6	664	667	.271	933	54
7	693	696	27.057	932	53
8	723	725	26.845	931	52
9	752	754	.637	930	51
10	.03781	.03783	26.432	.99929	50
11	810	812	.230	927	49
12	839	842	26.031	926	48
13	868	871	25.835	925	47
14	897	900	.642	924	46
15	.03926	.03929	25.452	.99923	45
16	955	958	.264	922	44
17	.03984	.03987	25.080	921	43
18	.04013	.04016	24.898	919	42
19	042	046	.719	918	41
20	.04071	.04073	24.542	.99917	40
21	100	104	.368	916	39
22	129	133	.196	915	38
23	159	162	24.026	913	37
24	188	191	23.859	912	36
25	.04217	.04220	23.695	.99911	35
26	246	250	.532	910	34
27	275	279	.372	909	33
28	304	308	.214	907	32
29	333	337	23.058	906	31
30	.04362	.04366	22.904	.99905	30
31	391	395	.752	904	29
32	420	424	.602	902	28
33	449	454	.454	901	27
34	478	483	.308	900	26
35	.04507	.04512	22.164	.99898	25
36	536	541	22.022	897	24
37	565	570	21.881	896	23
38	594	599	.743	894	22
39	623	628	.606	893	21
40	.04653	.04658	21.470	.99892	20
41	682	687	.337	890	19
42	711	716	.205	889	18
43	740	745	21.075	888	17
44	769	774	20.946	886	16
45	.04798	.04803	20.819	.99885	15
46	827	833	.693	883	14
47	856	862	.569	882	13
48	885	891	.446	881	12
49	914	920	.325	879	11
50	.04943	.04949	20.206	.99878	10
51	.04972	.04978	20.087	876	9
52	.05001	.05007	19.970	875	8
53	030	037	.855	873	7
54	059	066	.740	872	6
55	.05088	.05095	19.627	.99870	5
56	117	124	.516	869	4
57	146	153	.405	867	3
58	175	182	.296	866	2
59	205	212	.188	864	1
60	.05234	.05241	19.081	.99863	0

87°

3°

	sin	tan	cot	cos	
0	.05234	.05241	19.681	.99863	60
1	263	270	18.976	861	59
2	292	299	.871	860	58
3	321	328	.768	858	57
4	350	357	.666	857	56
5	.05379	.05387	18.564	.99855	55
6	408	416	.464	854	54
7	437	445	.366	852	53
8	466	474	.268	851	52
9	495	503	.171	849	51
10	.05524	.05533	18.075	.99847	50
11	553	562	17.980	846	49
12	582	591	.886	844	48
13	611	620	.793	842	47
14	640	649	.702	841	46
15	.05669	.05678	17.611	.99839	45
16	698	708	.521	838	44
17	727	737	.431	836	43
18	756	766	.343	834	42
19	785	795	.256	833	41
20	.05814	.05824	17.169	.99831	40
21	844	854	17.084	829	39
22	873	883	16.999	827	38
23	902	912	.915	826	37
24	931	941	.832	824	36
25	.05960	.05970	16.750	.99822	35
26	.05989	.05999	.668	821	34
27	.06018	.06029	.587	819	33
28	047	058	.507	817	32
29	076	087	.428	815	31
30	.06105	.06116	16.350	.99813	30
31	134	145	.272	812	29
32	163	175	.195	810	28
33	192	204	.119	808	27
34	221	233	16.043	806	26
35	.06250	.06262	15.969	.99804	25
36	279	291	.895	803	24
37	308	321	.821	801	23
38	337	350	.748	799	22
39	366	379	.676	797	21
40	.06395	.06408	15.605	.99795	20
41	424	438	.534	793	19
42	453	467	.464	792	18
43	482	496	.394	790	17
44	511	525	.325	788	16
45	.06540	.06554	15.257	.99786	15
46	569	584	.189	784	14
47	598	613	.122	782	13
48	627	642	15.056	780	12
49	656	671	14.990	778	11
50	.06685	.06700	14.924	.99776	10
51	714	730	.860	774	9
52	743	759	.795	772	8
53	773	788	.732	770	7
54	802	817	.669	768	6
55	.06831	.06847	14.606	.99766	5
56	860	876	.544	764	4
57	889	905	.482	762	3
58	918	934	.421	760	2
59	947	963	.361	758	1
60	.06976	.06993	14.301	.99756	0

86°

4°

	sin	tan	cot	cos	
0	.06976	.06993	14.301	.99756	60
1	.07005	.07022	.241	.754	59
2	.034	.051	.182	.752	58
3	.063	.080	.124	.750	57
4	.092	.110	.065	.748	56
5	.07121	.07139	14.008	.99746	55
6	.130	.168	13.951	.744	54
7	.179	.197	.894	.742	53
8	.208	.227	.838	.740	52
9	.237	.256	.782	.738	51
10	.07266	.07285	13.727	.99736	50
11	.295	.314	.672	.734	49
12	.324	.344	.617	.731	48
13	.353	.373	.563	.729	47
14	.382	.402	.510	.727	46
15	.07411	.07431	13.457	.99725	45
16	.440	.461	.404	.723	44
17	.469	.490	.352	.721	43
18	.498	.519	.300	.719	42
19	.527	.548	.248	.716	41
20	.07556	.07578	13.197	.99714	40
21	.585	.607	.146	.712	39
22	.614	.636	.096	.710	38
23	.643	.665	.046	.708	37
24	.672	.695	.000	.705	36
25	.07701	.07724	12.947	.99703	35
26	.730	.753	.898	.701	34
27	.759	.782	.850	.699	33
28	.788	.812	.801	.696	32
29	.817	.841	.754	.694	31
30	.07846	.07870	12.706	.99692	30
31	.875	.899	.659	.689	29
32	.904	.929	.612	.687	28
33	.933	.958	.566	.685	27
34	.962	.07987	.520	.683	26
35	.07991	.08017	12.474	.99680	25
36	.08020	.046	.429	.678	24
37	.049	.075	.384	.676	23
38	.078	.104	.339	.673	22
39	.107	.134	.295	.671	21
40	.08136	.08163	12.251	.99668	20
41	.165	.192	.207	.666	19
42	.194	.221	.163	.664	18
43	.223	.251	.120	.661	17
44	.252	.280	.077	.659	16
45	.08281	.08309	12.035	.99657	15
46	.310	.339	11.992	.654	14
47	.339	.368	.950	.652	13
48	.368	.397	.909	.649	12
49	.397	.427	.867	.647	11
50	.08426	.08456	11.826	.99644	10
51	.455	.485	.785	.642	9
52	.484	.514	.745	.639	8
53	.513	.544	.705	.637	7
54	.542	.573	.664	.635	6
55	.08571	.08602	11.625	.99632	5
56	.600	.632	.585	.630	4
57	.629	.661	.546	.627	3
58	.658	.690	.507	.625	2
59	.687	.720	.468	.622	1
60	.08716	.08749	11.430	.99619	0
	cos	cot	tan	sin	

85°

5°

	sin	tan	cot	cos	
0	.08716	.08749	11.430	.99619	60
1	.745	.778	.392	.617	59
2	.774	.807	.354	.614	58
3	.803	.837	.316	.612	57
4	.831	.866	.279	.609	56
5	.08860	.08895	11.242	.99607	55
6	.889	.925	.205	.604	54
7	.918	.954	.168	.602	53
8	.947	.08983	.132	.599	52
9	.08976	.09013	.095	.596	51
10	.09005	.09042	11.059	.99594	50
11	.034	.071	11.024	.591	49
12	.063	.101	10.988	.588	48
13	.092	.130	.953	.586	47
14	.121	.159	.918	.583	46
15	.09150	.09189	10.883	.99580	45
16	.179	.218	.848	.578	44
17	.208	.247	.814	.575	43
18	.237	.277	.780	.572	42
19	.266	.306	.746	.570	41
20	.09295	.09335	10.712	.99567	40
21	.324	.365	.678	.564	39
22	.353	.394	.645	.562	38
23	.382	.423	.612	.559	37
24	.411	.453	.579	.556	36
25	.09440	.09482	10.546	.99553	35
26	.469	.511	.514	.551	34
27	.498	.541	.481	.548	33
28	.527	.570	.449	.545	32
29	.556	.600	.417	.542	31
30	.09585	.09629	10.385	.99540	30
31	.614	.658	.354	.537	29
32	.642	.688	.322	.534	28
33	.671	.717	.291	.531	27
34	.700	.746	.260	.528	26
35	.09729	.09776	10.229	.99526	25
36	.758	.805	.199	.523	24
37	.787	.834	.168	.520	23
38	.816	.864	.138	.517	22
39	.845	.893	.108	.514	21
40	.09874	.09923	10.078	.99511	20
41	.903	.952	.048	.508	19
42	.932	.09981	10.019	.506	18
43	.961	10011	9.9893	.503	17
44	.09990	.040	.9601	.500	16
45	10019	10069	9.9310	.99497	15
46	.048	.099	.9021	.494	14
47	.077	.128	.8734	.491	13
48	.106	.158	.8448	.488	12
49	.135	.187	.8164	.485	11
50	.10164	.10216	9.7882	.99482	10
51	.192	.246	.7601	.479	9
52	.221	.275	.7322	.476	8
53	.250	.305	.7044	.473	7
54	.279	.334	.6768	.470	6
55	.10308	.10363	9.6493	.99467	5
56	.337	.393	.6220	.464	4
57	.366	.422	.5949	.461	3
58	.395	.452	.5679	.458	2
59	.424	.481	.5411	.455	1
60	.10453	.10510	9.5144	.99452	0
	cos	cot	tan	sin	

84°

6°

'	sin	tan	cot	cos	'
0	.10453	.10510	9.5144	.99452	60
1	482	540	.4878	449	59
2	511	569	.4614	446	58
3	540	599	.4352	443	57
4	569	628	.4090	440	56
5	.10597	.10657	9.3831	.99437	55
6	626	687	.3572	434	54
7	655	716	.3315	431	53
8	684	746	.3060	428	52
9	713	775	.2806	424	51
10	.10742	.10805	9.2553	.99421	50
11	771	834	.2302	418	49
12	800	863	.2052	415	48
13	829	893	.1803	412	47
14	858	922	.1555	409	46
15	.10887	.10952	9.1309	.99406	45
16	916	.10981	.1065	402	44
17	945	.11011	.0821	399	43
18	.10973	040	.0579	396	42
19	.11002	070	.0338	393	41
20	.11031	.11099	9.0098	.99390	40
21	060	128	8.9860	386	39
22	089	158	.9623	383	38
23	118	187	.9387	380	37
24	147	217	.9152	377	36
25	.11176	.11246	8.8919	.99374	35
26	205	276	.8686	370	34
27	234	305	.8455	367	33
28	263	335	.8225	364	32
29	291	364	.7996	360	31
30	.11320	.11394	8.7769	.99357	30
31	349	423	.7542	354	29
32	378	452	.7317	351	28
33	407	482	.7093	347	27
34	436	511	.6870	344	26
35	.11465	.11541	8.6648	.99341	25
36	494	570	.6427	337	24
37	523	600	.6208	334	23
38	552	629	.5989	331	22
39	580	659	.5772	327	21
40	.11609	.11688	8.5555	.99324	20
41	638	718	.5340	320	19
42	667	747	.5126	317	18
43	696	777	.4913	314	17
44	725	806	.4701	310	16
45	.11754	.11836	8.4490	.99307	15
46	783	865	.4280	303	14
47	812	895	.4071	300	13
48	840	924	.3863	297	12
49	869	954	.3656	293	11
50	.11898	.11983	8.3450	.99290	10
51	927	.12013	.3245	286	9
52	956	042	.3041	283	8
53	.11985	072	.2838	279	7
54	.12014	101	.2636	276	6
55	.12043	.12131	8.2434	.99272	5
56	071	160	.2234	269	4
57	100	190	.2035	265	3
58	129	219	.1837	262	2
59	158	249	.1640	258	1
60	.12187	.12278	8.1443	.99255	0
	cos	cot	tan	sin	'

83°

7°

'	sin	tan	cot	cos	'
0	.12187	.12278	8.1443	.99255	60
1	216	308	.1248	251	59
2	245	338	.1054	248	58
3	274	367	.0860	244	57
4	302	397	.0667	240	56
5	.12331	.12426	8.0476	.99237	55
6	360	456	.0285	233	54
7	389	485	8.0095	230	53
8	418	515	7.9906	226	52
9	447	544	.9718	222	51
10	.12476	.12574	7.9530	.99219	50
11	504	603	.9344	215	49
12	533	633	.9158	211	48
13	562	662	.8973	208	47
14	591	692	.8789	204	46
15	.12620	.12722	7.8606	.99200	45
16	649	751	.8424	197	44
17	678	781	.8243	193	43
18	706	810	.8062	189	42
19	735	840	.7882	186	41
20	.12764	.12869	7.7704	.99182	40
21	793	899	.7525	178	39
22	822	929	.7348	175	38
23	851	958	.7171	171	37
24	880	.12988	.6996	167	36
25	.12908	.13017	7.6821	.99163	35
26	937	047	.6647	160	34
27	966	076	.6473	156	33
28	.12995	106	.6301	152	32
29	.13024	136	.6129	148	31
30	.13053	.13165	7.5958	.99144	30
31	081	195	.5787	141	29
32	110	224	.5618	137	28
33	139	254	.5449	133	27
34	168	284	.5281	129	26
35	.13197	.13313	7.5113	.99125	25
36	226	343	.4947	122	24
37	254	372	.4781	118	23
38	283	402	.4615	114	22
39	312	432	.4451	110	21
40	.13341	.13461	7.4287	.99106	20
41	370	491	.4124	102	19
42	399	521	.3962	098	18
43	427	550	.3800	094	17
44	456	580	.3639	091	16
45	.13485	.13609	7.3479	.99087	15
46	514	639	.3319	083	14
47	543	669	.3160	079	13
48	572	698	.3002	075	12
49	600	728	.2844	071	11
50	.13629	.13758	7.2687	.99067	10
51	658	787	.2531	063	9
52	687	817	.2375	059	8
53	716	846	.2220	055	7
54	744	876	.2066	051	6
55	.13773	.13906	7.1912	.99047	5
56	802	935	.1759	043	4
57	831	965	.1607	039	3
58	860	.13995	.1455	035	2
59	889	.14024	.1304	031	1
60	.13917	.14054	7.1154	.99027	0
	cos	cot	tan	sin	'

82°

8°

	sin	tan	cot	cos	
0	.13917	.14354	7.1154	.99027	60
1	946	084	.1004	.023	59
2	.13975	113	.0855	.019	58
3	.14004	143	.0706	.015	57
4	033	173	.0558	.011	56
5	.14061	.14202	7.0410	.99006	55
6	090	232	.0264	.99002	54
7	119	262	7.0117	.98998	53
8	148	291	6.9972	.994	52
9	177	321	.9827	.990	51
10	.14205	.14351	6.9682	.98986	50
11	234	381	.9538	.982	49
12	263	410	.9395	.978	48
13	292	440	.9252	.973	47
14	320	470	.9110	.969	46
15	.14349	.14499	6.8969	.98965	45
16	378	529	.8828	.961	44
17	407	559	.8687	.957	43
18	436	588	.8548	.953	42
19	464	618	.8408	.948	41
20	.14493	.14648	6.8269	.98944	40
21	522	678	.8131	.940	39
22	551	707	.7994	.936	38
23	580	737	.7856	.931	37
24	608	767	.7720	.927	36
25	.14637	.14796	6.7584	.98923	35
26	666	826	.7448	.919	34
27	695	856	.7313	.914	33
28	723	886	.7179	.910	32
29	752	915	.7045	.906	31
30	.14781	.14945	6.6912	.98902	30
31	810	14975	.6779	.897	29
32	838	.15005	.6646	.893	28
33	867	034	.6514	.889	27
34	896	064	.6383	.884	26
35	.14925	.15094	6.6252	.98880	25
36	954	124	.6122	.876	24
37	.14982	153	.5992	.871	23
38	.15011	183	.5863	.867	22
39	040	213	.5734	.863	21
40	.15069	.15243	6.5606	.98858	20
41	097	272	.5478	.854	19
42	126	302	.5350	.849	18
43	155	332	.5223	.845	17
44	184	362	.5097	.841	16
45	.15212	.15391	6.4971	.98836	15
46	241	421	.4846	.832	14
47	270	451	.4721	.827	13
48	299	481	.4596	.823	12
49	327	511	.4472	.818	11
50	.15356	.15540	6.4348	.98814	10
51	385	570	.4225	.809	9
52	414	600	.4103	.805	8
53	442	630	.3980	.800	7
54	471	660	.3859	.796	6
55	.15500	.15689	6.3737	.98791	5
56	529	719	.3617	.787	4
57	557	749	.3496	.782	3
58	586	779	.3376	.778	2
59	615	809	.3257	.773	1
60	.15643	.15838	6.3138	.98769	0
	cos	cot	tan	sin	

81°

9°

	sin	tan	cot	cos	
0	.15643	.15838	6.3138	.98769	60
1	672	868	.3019	.764	59
2	701	898	.2901	.760	58
3	730	928	.2783	.755	57
4	758	958	.2666	.751	56
5	.15787	.15988	6.2549	.98746	55
6	816	.16017	.2432	.741	54
7	845	047	.2316	.737	53
8	873	077	.2200	.732	52
9	902	107	.2085	.728	51
10	.15931	.16137	6.1970	.98723	50
11	959	167	.1856	.718	49
12	.15988	196	.1742	.714	48
13	.16017	226	.1628	.709	47
14	046	256	.1515	.704	46
15	.16074	.16286	6.1402	.98700	45
16	103	316	.1290	.695	44
17	132	346	.1178	.690	43
18	.160	376	.1066	.686	42
19	189	405	.0955	.681	41
20	.16218	.16435	6.0844	.98676	40
21	246	465	.0734	.671	39
22	275	495	.0624	.667	38
23	304	525	.0514	.662	37
24	333	555	.0405	.657	36
25	.16361	.16585	6.0296	.98652	35
26	390	615	.0188	.648	34
27	419	645	.0080	.643	33
28	447	674	.5.9972	.638	32
29	476	704	.9865	.633	31
30	.16505	.16734	5.9758	.98629	30
31	533	764	.9651	.624	29
32	562	794	.9545	.619	28
33	591	824	.9439	.614	27
34	620	854	.9333	.609	26
35	.16648	.16884	5.9228	.98604	25
36	677	914	.9124	.600	24
37	706	944	.9019	.595	23
38	734	16974	.8915	.590	22
39	763	17004	.8811	.585	21
40	.16792	.17033	5.8708	.98580	20
41	820	063	.8605	.575	19
42	849	093	.8502	.570	18
43	878	123	.8400	.565	17
44	906	153	.8298	.561	16
45	.16935	.17183	5.8197	.98556	15
46	964	213	.8095	.551	14
47	16992	243	.7994	.546	13
48	17021	273	.7894	.541	12
49	050	303	.7794	.536	11
50	.17078	.17333	5.7694	.98531	10
51	107	363	.7594	.526	9
52	136	393	.7495	.521	8
53	164	423	.7396	.516	7
54	193	453	.7297	.511	6
55	.17222	.17483	5.7199	.98506	5
56	250	513	.7101	.501	4
57	279	543	.7004	.496	3
58	308	573	.6906	.491	2
59	336	603	.6809	.486	1
60	.17365	.17633	5.6713	.98481	0
	cos	cot	tan	sin	

80°

10°

	sin	tan	cot	cos	
0	.1736	.17633	5.6713	.98481	60
1	393	663	.6617	476	59
2	422	693	.6521	471	58
3	451	723	.6425	466	57
4	479	753	.6329	461	56
5	.17508	.17783	5.6234	.98455	55
6	537	813	.6140	450	54
7	565	843	.6045	445	53
8	594	873	.5951	440	52
9	623	903	.5857	435	51
10	.17651	.17933	5.5764	.98430	50
11	680	963	.5671	425	49
12	708	.17993	.5578	420	48
13	737	18023	.5485	414	47
14	766	053	.5393	409	46
15	.17794	18083	5.5301	.98404	45
16	823	113	.5209	399	44
17	852	143	.5118	394	43
18	880	173	.5026	389	42
19	909	203	.4936	383	41
20	.17937	18233	5.4845	.98378	40
21	966	263	.4755	373	39
22	.17995	293	.4665	368	38
23	18023	323	.4575	362	37
24	052	353	.4486	357	36
25	18081	18384	5.4397	.98352	35
26	109	414	.4308	347	34
27	138	444	.4219	341	33
28	166	474	.4131	336	32
29	195	504	.4043	331	31
30	.18224	18534	5.3955	.98325	30
31	252	564	.3868	320	29
32	281	594	.3781	315	28
33	309	624	.3694	310	27
34	338	654	.3607	304	26
35	18367	18684	5.3521	.98299	25
36	395	714	.3435	294	24
37	424	745	.3349	288	23
38	452	775	.3263	283	22
39	481	805	.3178	277	21
40	.18509	18835	5.3093	.98272	20
41	538	865	.3008	257	19
42	567	895	.2924	261	18
43	595	925	.2839	256	17
44	624	955	.2755	250	16
45	.18652	18986	5.2672	.98245	15
46	681	19016	.2588	240	14
47	710	046	.2505	234	13
48	738	076	.2422	229	12
49	767	106	.2339	223	11
50	.18795	19136	5.2257	.98218	10
51	824	166	.2174	212	9
52	852	197	.2092	207	8
53	881	227	.2011	201	7
54	910	257	.1929	196	6
55	.18938	19287	5.1848	.98190	5
56	967	317	.1767	185	4
57	.18995	347	.1686	179	3
58	19024	378	.1606	174	2
59	052	408	.1526	168	1
60	19081	19438	5.1446	.98163	0

79°

11°

	sin	tan	cot	cos	
0	.19081	.19438	5.1445	.98163	60
1	109	468	.1366	157	59
2	138	498	.1286	152	58
3	167	529	.1207	146	57
4	195	559	.1128	140	56
5	.19224	.19589	5.1049	.98135	55
6	252	619	.0970	129	54
7	281	649	.0892	124	53
8	309	680	.0814	118	52
9	338	710	.0736	112	51
10	.19366	.19740	5.0658	.98107	50
11	395	770	.0581	101	49
12	423	801	.0504	96	48
13	452	831	.0427	90	47
14	481	861	.0350	84	46
15	.19509	.19891	5.0273	.98079	45
16	538	921	.0197	73	44
17	566	952	.0121	67	43
18	595	19982	5.0045	61	42
19	623	20012	4.9969	56	41
20	.19652	20042	4.9894	.98050	40
21	680	073	.9819	044	39
22	709	103	.9744	039	38
23	737	133	.9669	033	37
24	766	164	.9594	027	36
25	.19794	.20194	4.9520	.98021	35
26	823	224	.9446	016	34
27	851	254	.9372	010	33
28	880	285	.9298	.98004	32
29	908	315	.9225	.97998	31
30	.19937	.20345	4.9152	.97992	30
31	965	376	.9078	987	29
32	19994	406	.9006	981	28
33	20022	436	.8933	975	27
34	051	466	.8860	969	26
35	.20079	.20497	4.8788	.97963	25
36	108	527	.8716	958	24
37	136	557	.8644	952	23
38	165	588	.8573	946	22
39	193	618	.8501	940	21
40	.20222	.20648	4.8430	.97934	20
41	250	679	.8359	928	19
42	279	709	.8288	922	18
43	307	739	.8218	916	17
44	336	770	.8147	910	16
45	.20364	.20800	4.8077	.97905	15
46	393	830	.8007	899	14
47	421	861	.7937	893	13
48	450	891	.7867	887	12
49	478	921	.7798	881	11
50	.20507	.20952	4.7729	.97875	10
51	535	.20982	.7659	869	9
52	563	.21013	.7591	863	8
53	592	043	.7522	857	7
54	620	073	.7453	851	6
55	.20649	.21104	4.7385	.97845	5
56	677	134	.7317	839	4
57	706	164	.7249	833	3
58	734	195	.7181	827	2
59	763	225	.7114	821	1
60	.20791	.21256	4.7046	.97815	0

78°

12°

	sin	tan	cot	cos	
0	.20791	.21256	4.7046	.97815	60
1	820	286	.6979	809	59
2	848	316	.6912	803	58
3	877	347	.6845	797	57
4	905	377	.6779	791	56
5	.20933	.21408	4.6712	.97784	55
6	962	438	.6646	778	54
7	.20990	469	.6580	772	53
8	.21019	499	.6514	766	52
9	047	529	.6448	760	51
10	.21076	.21560	4.6382	.97754	50
11	104	590	.6317	748	49
12	132	621	.6252	742	48
13	161	651	.6187	735	47
14	189	682	.6122	729	46
15	.21218	.21712	4.6057	.97723	45
16	246	743	.5993	717	44
17	275	773	.5928	711	43
18	303	804	.5864	705	42
19	331	834	.5800	698	41
20	.21360	.21864	4.5736	.97692	40
21	388	895	.5673	686	39
22	417	925	.5609	680	38
23	445	956	.5546	673	37
24	474	.21986	.5483	667	36
25	.21502	.22017	4.5420	.97661	35
26	530	047	.5357	655	34
27	559	078	.5294	648	33
28	587	108	.5232	642	32
29	616	139	.5169	636	31
30	.21644	.22169	4.5107	.97630	30
31	672	200	.5045	623	29
32	701	231	.4983	617	28
33	729	261	.4922	611	27
34	758	292	.4860	604	26
35	.21786	.22322	4.4799	.97598	25
36	814	353	.4737	592	24
37	843	383	.4676	585	23
38	871	414	.4615	579	22
39	899	444	.4555	573	21
40	.21928	.22475	4.4494	.97566	20
41	956	505	.4434	560	19
42	.21985	536	.4373	553	18
43	.22013	567	.4313	547	17
44	041	597	.4253	541	16
45	.22070	.22628	4.4194	.97534	15
46	098	658	.4134	528	14
47	126	689	.4075	521	13
48	155	719	.4015	515	12
49	183	750	.3956	508	11
50	.22212	.22781	4.3897	.97502	10
51	240	811	.3838	496	9
52	268	842	.3779	489	8
53	297	872	.3721	483	7
54	325	903	.3662	476	6
55	.22353	.22934	4.3604	.97470	5
56	382	964	.3546	463	4
57	410	.22995	.3488	457	3
58	438	.23026	.3430	450	2
59	467	056	.3372	444	1
60	.22495	.23087	4.3315	.97437	0

77°

13°

	sin	tan	cot	cos	
0	.22495	.23087	4.3315	.97437	60
1	523	117	.3257	430	59
2	552	148	.3200	424	58
3	580	179	.3143	417	57
4	608	209	.3086	411	56
5	.22637	.23240	4.3029	.97404	55
6	665	271	.2972	398	54
7	693	301	.2916	391	53
8	722	332	.2859	384	52
9	750	363	.2803	378	51
10	.22778	.23393	4.2747	.97371	50
11	807	424	.2691	365	49
12	835	455	.2635	358	48
13	863	485	.2580	351	47
14	892	516	.2524	345	46
15	.22920	.23547	4.2468	.97338	45
16	948	578	.2413	331	44
17	.22977	608	.2358	325	43
18	.23005	639	.2303	318	42
19	033	670	.2248	311	41
20	.23062	.23700	4.2193	.97304	40
21	090	731	.2139	298	39
22	118	762	.2084	291	38
23	146	793	.2030	284	37
24	175	823	.1976	278	36
25	.23203	.23854	4.1922	.97271	35
26	231	885	.1868	264	34
27	260	916	.1814	257	33
28	288	946	.1760	251	32
29	316	.23977	.1706	244	31
30	.23345	.24008	4.1653	.97237	30
31	373	039	.1600	230	29
32	401	069	.1547	223	28
33	429	100	.1493	217	27
34	458	131	.1441	210	26
35	.23486	.24162	4.1388	.97203	25
36	514	193	.1335	196	24
37	542	223	.1282	189	23
38	571	254	.1230	182	22
39	599	285	.1178	176	21
40	.23627	.24316	4.1126	.97169	20
41	656	347	.1074	162	19
42	684	377	.1022	155	18
43	712	408	.0970	148	17
44	740	439	.0918	141	16
45	.23769	.24470	4.0867	.97134	15
46	797	501	.0815	127	14
47	825	532	.0764	120	13
48	853	562	.0713	113	12
49	882	593	.0662	106	11
50	.23910	.24624	4.0611	.97100	10
51	938	655	.0560	093	9
52	966	686	.0509	086	8
53	.23995	717	.0459	079	7
54	.24023	747	.0408	072	6
55	.24051	.24778	4.0358	.97065	5
56	079	809	.0308	058	4
57	108	840	.0257	051	3
58	136	871	.0207	044	2
59	164	902	.0158	037	1
60	.24192	.24933	4.0108	.97030	0

76°

14°

'	sin	tan	cot	cos	'
0	.24192	.24933	4.0108	.97030	60
1	220	964	.0058	023	59
2	249	.24995	4.0009	015	58
3	277	.25026	3.9959	008	57
4	305	056	.9910	.97001	56
5	.24333	.25087	3.9861	.96994	55
6	362	118	.9812	987	54
7	390	149	.9763	980	53
8	418	180	.9714	973	52
9	446	211	.9665	966	51
10	.24474	.25242	3.9617	.96959	50
11	503	273	.9568	952	49
12	531	304	.9520	945	48
13	559	335	.9471	937	47
14	587	366	.9423	930	46
15	.24615	.25397	3.9375	.96923	45
16	644	428	.9327	916	44
17	672	459	.9279	909	43
18	700	490	.9232	902	42
19	728	521	.9184	894	41
20	.24756	.25552	3.9136	.96887	40
21	784	583	.9089	880	39
22	813	614	.9042	873	38
23	841	645	.8995	866	37
24	869	676	.8947	858	36
25	.24897	.25707	3.8900	.96851	35
26	925	738	.8854	844	34
27	954	769	.8807	837	33
28	.24982	800	.8760	829	32
29	.25010	831	.8714	822	31
30	.25038	.25862	3.8667	.96815	30
31	066	893	.8621	807	29
32	094	924	.8575	800	28
33	122	955	.8528	793	27
34	151	.25986	.8482	786	26
35	.25179	.26017	3.8436	.96778	25
36	207	048	.8391	771	24
37	235	079	.8345	764	23
38	263	110	.8299	756	22
39	291	141	.8254	749	21
40	.25320	.26172	3.8208	.96742	20
41	348	203	.8163	734	19
42	376	235	.8118	727	18
43	404	266	.8073	719	17
44	432	297	.8028	712	16
45	.25460	.26328	3.7983	.96705	15
46	488	359	.7938	697	14
47	516	390	.7893	690	13
48	545	421	.7848	682	12
49	573	452	.7804	675	11
50	.25601	.26483	3.7760	.96667	10
51	629	515	.7715	660	9
52	657	546	.7671	653	8
53	685	577	.7627	645	7
54	713	608	.7583	638	6
55	.25741	.26639	3.7539	.96630	5
56	769	670	.7495	623	4
57	798	701	.7451	615	3
58	826	733	.7408	608	2
59	854	764	.7364	600	1
60	.25882	.26795	3.7321	.96593	0
	cos	cot	tan	sin	'

75°

15°

'	sin	tan	cot	cos	'
0	.25882	.26795	3.7321	.96593	60
1	910	826	.7277	585	59
2	938	857	.7234	578	58
3	966	888	.7191	570	57
4	.25994	920	.7148	562	56
5	.26022	.26951	3.7105	.96555	55
6	050	.26982	.7062	547	54
7	079	.27013	.7019	540	53
8	107	044	.6976	532	52
9	135	076	.6933	524	51
10	.26163	.27107	3.6891	.96517	50
11	191	138	.6848	509	49
12	219	169	.6806	502	48
13	247	201	.6764	494	47
14	275	232	.6722	486	46
15	.26303	.27263	3.6680	.96479	45
16	331	294	.6638	471	44
17	359	326	.6596	463	43
18	387	357	.6554	456	42
19	415	388	.6512	448	41
20	.26443	.27419	3.6470	.96440	40
21	471	451	.6429	433	39
22	500	482	.6387	425	38
23	528	513	.6346	417	37
24	556	545	.6305	410	36
25	.26584	.27576	3.6264	.96402	35
26	612	607	.6222	394	34
27	640	638	.6181	386	33
28	668	670	.6140	379	32
29	696	701	.6100	371	31
30	.26724	.27732	3.6059	.96363	30
31	752	764	.6018	355	29
32	780	795	.5978	347	28
33	808	826	.5937	340	27
34	836	858	.5897	332	26
35	.26864	.27889	3.5856	.96324	25
36	892	921	.5816	316	24
37	920	952	.5776	308	23
38	948	.27983	.5736	301	22
39	.26976	.28015	.5696	293	21
40	.27004	.28046	3.5656	.96285	20
41	032	077	.5616	277	19
42	060	109	.5576	269	18
43	088	140	.5536	261	17
44	116	172	.5497	253	16
45	.27144	.28203	3.5457	.96246	15
46	172	234	.5418	238	14
47	200	266	.5379	230	13
48	228	297	.5339	222	12
49	256	329	.5300	214	11
50	.27284	.28360	3.5261	.96206	10
51	312	391	.5222	198	9
52	340	423	.5183	190	8
53	368	454	.5144	182	7
54	396	486	.5105	174	6
55	.27424	.28517	3.5067	.96166	5
56	452	549	.5028	158	4
57	480	580	.4989	150	3
58	508	612	.4951	142	2
59	536	643	.4912	134	1
60	.27564	.28675	3.4874	.96126	0
	cos	cot	tan	sin	'

74°

16°

	sin	tan	cot	cos	
0	.27564	.28673	3.4874	.96126	60
1	592	706	.4836	118	59
2	620	738	.4798	110	58
3	648	769	.4760	102	57
4	676	801	.4722	094	56
5	.27704	.28832	3.4684	.96086	55
6	731	864	.4646	078	54
7	759	895	.4608	070	53
8	787	927	.4570	062	52
9	815	958	.4533	054	51
10	.27843	.28990	3.4495	.96046	50
11	871	.29021	.4458	037	49
12	899	053	.4420	029	48
13	927	084	.4383	021	47
14	955	116	.4346	013	46
15	.27983	.29147	3.4308	.96005	45
16	28011	179	.4271	.95997	44
17	039	210	.4234	989	43
18	067	242	.4197	981	42
19	095	274	.4160	972	41
20	.28123	.29305	3.4124	.95964	40
21	150	337	.4087	956	39
22	178	368	.4050	948	38
23	206	400	.4014	940	37
24	234	432	.3977	931	36
25	.28262	.29463	3.3941	.95923	35
26	290	495	.3904	915	34
27	318	526	.3868	907	33
28	346	558	.3832	898	32
29	374	590	.3796	890	31
30	.28402	.29621	3.3759	.95882	30
31	429	653	.3723	874	29
32	457	685	.3687	865	28
33	485	716	.3652	857	27
34	513	748	.3616	849	26
35	.28541	.29780	3.3580	.95841	25
36	569	811	.3544	832	24
37	597	843	.3509	824	23
38	625	875	.3473	816	22
39	652	906	.3438	807	21
40	.28680	.29938	3.3402	.95799	20
41	708	29970	.3367	791	19
42	736	30001	.3332	782	18
43	764	033	.3297	774	17
44	792	065	.3261	766	16
45	.28820	.30097	3.3226	.95757	15
46	847	128	.3191	749	14
47	875	160	.3156	740	13
48	903	192	.3122	732	12
49	931	224	.3087	724	11
50	.28959	.30255	3.3052	.95715	10
51	28987	287	.3017	707	9
52	29015	319	.2983	698	8
53	042	351	.2948	690	7
54	070	382	.2914	681	6
55	.29098	.30414	3.2879	.95673	5
56	126	446	.2845	664	4
57	154	478	.2811	656	3
58	182	509	.2777	647	2
59	209	541	.2743	639	1
60	.29237	.30573	3.2709	.95630	0
	cos	cot	tan	sin	

73°

17°

	sin	tan	cot	cos	
0	.29237	.30573	3.2709	.95630	60
1	265	605	.2675	622	59
2	293	637	.2641	613	58
3	321	669	.2607	605	57
4	348	700	.2573	596	56
5	.29376	.30732	3.2539	.95588	55
6	404	764	.2506	579	54
7	432	796	.2472	571	53
8	460	828	.2438	562	52
9	487	850	.2405	554	51
10	.29515	.30891	3.2371	.95545	50
11	543	923	.2338	536	49
12	571	955	.2305	528	48
13	599	30987	.2272	519	47
14	626	.31019	.2238	511	46
15	.29654	.31051	3.2205	.95502	45
16	682	083	.2172	493	44
17	710	115	.2139	485	43
18	737	147	.2106	476	42
19	765	178	.2073	467	41
20	.29793	.31210	3.2041	.95459	40
21	821	242	.2008	450	39
22	849	274	.1975	441	38
23	876	306	.1943	433	37
24	904	338	.1910	424	36
25	.29932	.31370	3.1878	.95415	35
26	960	402	.1845	407	34
27	29987	434	.1813	398	33
28	30015	466	.1780	389	32
29	043	498	.1748	380	31
30	.30071	.31530	3.1716	.95372	30
31	098	562	.1684	363	29
32	126	594	.1652	354	28
33	154	626	.1620	345	27
34	182	658	.1588	337	26
35	.30209	.31690	3.1556	.95328	25
36	237	722	.1524	319	24
37	265	754	.1492	310	23
38	292	786	.1460	301	22
39	320	818	.1429	293	21
40	.30348	.31850	3.1397	.95284	20
41	376	882	.1366	275	19
42	403	914	.1334	266	18
43	431	946	.1303	257	17
44	459	31978	.1271	248	16
45	.30486	.32010	3.1240	.95240	15
46	514	042	.1209	231	14
47	542	074	.1178	222	13
48	570	106	.1146	213	12
49	597	139	.1115	204	11
50	.30625	.32171	3.1084	.95195	10
51	653	203	.1053	186	9
52	680	235	.1022	177	8
53	708	267	.0991	168	7
54	736	299	.0961	159	6
55	.30763	.32331	3.0930	.95150	5
56	791	363	.0899	142	4
57	819	396	.0868	133	3
58	846	428	.0838	124	2
59	874	460	.0807	115	1
60	.30902	.32492	3.0777	.95106	0
	cos	cot	tan	sin	

72°

18°

	sin	tan	cot	cos	
0	.30902	.32492	3.0777	.95106	60
1	.929	.524	.0746	.097	59
2	.957	.556	.0716	.088	58
3	.30985	.588	.0686	.079	57
4	.31012	.621	.0655	.070	56
5	.31040	.32653	3.0625	.95061	55
6	.068	.685	.0595	.052	54
7	.095	.717	.0565	.043	53
8	.123	.749	.0535	.033	52
9	.151	.782	.0505	.024	51
10	.31178	.32814	3.0475	.95015	50
11	.206	.846	.0445	.95006	49
12	.233	.878	.0415	.94997	48
13	.261	.911	.0385	.988	47
14	.289	.943	.0356	.979	46
15	.31316	.32975	3.0326	.94970	45
16	.344	.33007	.0296	.961	44
17	.372	.040	.0267	.952	43
18	.399	.072	.0237	.943	42
19	.427	.104	.0208	.933	41
20	.31454	.33136	3.0178	.94924	40
21	.482	.169	.0149	.915	39
22	.510	.201	.0120	.906	38
23	.537	.233	.0090	.897	37
24	.565	.266	.0061	.888	36
25	.31593	.33298	3.0032	.94878	35
26	.620	.330	.0003	.869	34
27	.648	.363	2.9974	.860	33
28	.675	.395	.9945	.851	32
29	.703	.427	.9916	.842	31
30	.31730	.33460	2.9887	.94832	30
31	.758	.492	.9858	.823	29
32	.786	.524	.9829	.814	28
33	.813	.557	.9800	.805	27
34	.841	.589	.9772	.795	26
35	.31868	.33621	2.9743	.94786	25
36	.896	.654	.9714	.777	24
37	.923	.686	.9686	.768	23
38	.951	.718	.9657	.758	22
39	.31979	.751	.9629	.749	21
40	.32006	.33783	2.9600	.94740	20
41	.034	.816	.9572	.730	19
42	.061	.848	.9544	.721	18
43	.089	.881	.9515	.712	17
44	.116	.913	.9487	.702	16
45	.32144	.33945	2.9459	.94693	15
46	.171	.33978	.9431	.684	14
47	.199	.34010	.9403	.674	13
48	.227	.043	.9375	.665	12
49	.254	.075	.9347	.656	11
50	.32282	.34108	2.9319	.94646	10
51	.309	.140	.9291	.637	9
52	.337	.173	.9263	.627	8
53	.364	.205	.9235	.618	7
54	.392	.238	.9208	.609	6
55	.32419	.34270	2.9180	.94599	5
56	.447	.303	.9152	.590	4
57	.474	.335	.9125	.580	3
58	.502	.368	.9097	.571	2
59	.529	.400	.9070	.561	1
60	.32557	.34433	2.9042	.94552	0
	cos	cot	tan	sin	

71°

19°

	sin	tan	cot	cos	
0	.32557	.34433	2.9042	.94552	00
1	.584	.465	.9015	.542	59
2	.612	.498	.8987	.533	58
3	.639	.530	.8960	.523	57
4	.667	.563	.8933	.514	56
5	.32694	.34596	2.8905	.94504	55
6	.722	.628	.8878	.495	54
7	.749	.661	.8851	.485	53
8	.777	.693	.8824	.476	52
9	.804	.726	.8797	.466	51
10	.32832	.34758	2.8770	.94457	50
11	.859	.791	.8743	.447	49
12	.887	.824	.8716	.438	48
13	.914	.856	.8689	.428	47
14	.942	.889	.8662	.418	46
15	.32969	.34922	2.8636	.94409	45
16	.32997	.954	.8609	.399	44
17	.33024	.34987	.8582	.390	43
18	.051	.35020	.8556	.380	42
19	.079	.052	.8529	.370	41
20	.33106	.35085	2.8502	.94361	40
21	.134	.118	.8476	.351	39
22	.161	.150	.8449	.342	38
23	.189	.183	.8423	.332	37
24	.216	.216	.8397	.322	36
25	.33244	.35248	2.8370	.94313	35
26	.271	.281	.8344	.303	34
27	.298	.314	.8318	.293	33
28	.326	.346	.8291	.284	32
29	.353	.379	.8265	.274	31
30	.33381	.35412	2.8239	.94264	30
31	.408	.445	.8213	.254	29
32	.436	.477	.8187	.245	28
33	.463	.510	.8161	.235	27
34	.490	.543	.8135	.225	26
35	.33518	.35576	2.8109	.94215	25
36	.545	.608	.8083	.206	24
37	.573	.641	.8057	.196	23
38	.600	.674	.8032	.186	22
39	.627	.707	.8006	.176	21
40	.33655	.35740	2.7980	.94167	20
41	.682	.772	.7955	.157	19
42	.710	.805	.7929	.147	18
43	.737	.838	.7903	.137	17
44	.764	.871	.7878	.127	16
45	.33792	.35904	2.7852	.94118	15
46	.819	.937	.7827	.108	14
47	.846	.35969	.7801	.098	13
48	.874	.36002	.7776	.088	12
49	.901	.035	.7751	.078	11
50	.33929	.36068	2.7725	.94068	10
51	.956	.101	.7700	.058	9
52	.33983	.134	.7675	.049	8
53	.34011	.167	.7650	.039	7
54	.038	.199	.7625	.029	6
55	.34065	.36232	2.7600	.94019	5
56	.093	.265	.7575	.94009	4
57	.120	.298	.7550	.93999	3
58	.147	.331	.7525	.989	2
59	.175	.364	.7500	.979	1
60	.34202	.36397	2.7475	.93969	0
	cos	cot	tan	sin	

70°

20°

	sin	tan	cot	cos	
0	.34202	.36397	2.7475	.93969	60
1	.229	430	.7450	.959	59
2	.257	463	.7425	.949	58
3	.284	496	.7400	.939	57
4	.311	529	.7376	.929	56
5	.34339	.36562	2.7351	.93919	55
6	.366	595	.7326	.909	54
7	.393	628	.7302	.899	53
8	.421	661	.7277	.889	52
9	.448	694	.7253	.879	51
10	.34475	.36727	2.7228	.93869	50
11	.503	760	.7204	.859	49
12	.530	793	.7179	.849	48
13	.557	826	.7155	.839	47
14	.584	859	.7130	.829	46
15	.34612	.36892	2.7106	.93819	45
16	.639	925	.7082	.809	44
17	.666	958	.7058	.799	43
18	.694	.36991	.7034	.789	42
19	.721	.37024	.7009	.779	41
20	.34748	.37057	2.6985	.93769	40
21	.775	.090	.6961	.759	39
22	.803	.123	.6937	.748	38
23	.830	.157	.6913	.738	37
24	.857	.190	.6889	.728	36
25	.34884	.37223	2.6865	.93718	35
26	.912	.256	.6841	.708	34
27	.939	.289	.6818	.698	33
28	.966	.322	.6794	.688	32
29	.34993	.355	.6770	.677	31
30	.35021	.37388	2.6746	.93667	30
31	.048	.422	.6723	.657	29
32	.075	.455	.6699	.647	28
33	.102	.488	.6675	.637	27
34	.130	.521	.6652	.626	26
35	.35157	.37554	2.6628	.93616	25
36	.184	.588	.6605	.606	24
37	.211	.621	.6581	.596	23
38	.239	.654	.6558	.585	22
39	.266	.687	.6534	.575	21
40	.35293	.37720	2.6511	.93565	20
41	.320	.754	.6488	.555	19
42	.347	.787	.6464	.544	18
43	.375	.820	.6441	.534	17
44	.402	.853	.6418	.524	16
45	.35429	.37887	2.6395	.93514	15
46	.456	.920	.6371	.503	14
47	.484	.953	.6348	.493	13
48	.511	.37986	.6325	.483	12
49	.538	.38020	.6302	.472	11
50	.35565	.38053	2.6279	.93462	10
51	.592	.086	.6256	.452	9
52	.619	.120	.6233	.441	8
53	.647	.153	.6210	.431	7
54	.674	.186	.6187	.420	6
55	.35701	.38220	2.6165	.93410	5
56	.728	.253	.6142	.400	4
57	.755	.286	.6119	.389	3
58	.782	.320	.6096	.379	2
59	.810	.353	.6074	.368	1
60	.35837	.38386	2.6051	.93358	0
	cos	cot	tan	sin	'

69°

21°

	sin	tan	cot	cos	
0	.35837	.38386	2.6051	.93358	60
1	.864	420	.6028	.348	59
2	.891	453	.6006	.337	58
3	.918	487	.5983	.327	57
4	.945	520	.5961	.316	56
5	.35973	.38553	2.5938	.93306	55
6	.36000	.587	.5916	.295	54
7	.027	.620	.5893	.285	53
8	.054	.654	.5871	.274	52
9	.081	.687	.5848	.264	51
10	.36108	.38721	2.5826	.93253	50
11	.135	.754	.5804	.243	49
12	.162	.787	.5782	.232	48
13	.190	.821	.5759	.222	47
14	.217	.854	.5737	.211	46
15	.36244	.38888	2.5715	.93201	45
16	.271	.921	.5693	.190	44
17	.298	.955	.5671	.180	43
18	.325	.38988	.5649	.169	42
19	.352	.39022	.5627	.159	41
20	.36379	.39055	2.5605	.93148	40
21	.406	.089	.5583	.137	39
22	.434	.122	.5561	.127	38
23	.461	.156	.5539	.116	37
24	.488	.190	.5517	.106	36
25	.36515	.39223	2.5495	.93095	35
26	.542	.257	.5473	.084	34
27	.569	.290	.5452	.074	33
28	.596	.324	.5430	.063	32
29	.623	.357	.5408	.052	31
30	.36650	.39391	2.5386	.93042	30
31	.677	.425	.5365	.031	29
32	.704	.458	.5343	.020	28
33	.731	.492	.5322	.93010	27
34	.758	.526	.5300	.92999	26
35	.36785	.39559	2.5279	.92988	25
36	.812	.593	.5257	.978	24
37	.839	.626	.5236	.967	23
38	.867	.660	.5214	.956	22
39	.894	.694	.5193	.945	21
40	.36921	.39727	2.5172	.92935	20
41	.948	.761	.5150	.924	19
42	.36975	.795	.5129	.913	18
43	.37002	.829	.5108	.902	17
44	.029	.862	.5086	.892	16
45	.37056	.39896	2.5065	.92881	15
46	.083	.930	.5044	.870	14
47	.110	.963	.5023	.859	13
48	.137	.39997	.5002	.849	12
49	.164	.40031	.4981	.838	11
50	.37191	.40065	2.4960	.92827	10
51	.218	.098	.4939	.816	9
52	.245	.132	.4918	.805	8
53	.272	.166	.4897	.794	7
54	.299	.200	.4876	.784	6
55	.37326	.40234	2.4855	.92773	5
56	.353	.267	.4834	.762	4
57	.380	.301	.4813	.751	3
58	.407	.335	.4792	.740	2
59	.434	.369	.4772	.729	1
60	.37461	.40403	2.4751	.92718	0
	cos	cot	tan	sin	'

68°

22°

	sin	tan	cot	cos	
0	.37461	.40403	2.4751	.92718	60
1	488	436	.4730	707	59
2	515	470	.4709	697	58
3	542	504	.4689	686	57
4	569	538	.4668	675	56
5	.37595	.40572	2.4648	.92664	55
6	622	606	.4627	653	54
7	649	640	.4606	642	53
8	676	674	.4586	631	52
9	703	707	.4566	620	51
10	.37730	.40741	2.4545	.92609	50
11	757	775	.4525	598	49
12	784	809	.4504	587	48
13	811	843	.4484	576	47
14	838	877	.4464	565	46
15	.37865	.40911	2.4443	.92554	45
16	892	945	.4423	543	44
17	919	.40979	.4403	532	43
18	946	.41013	.4383	521	42
19	973	047	.4362	510	41
20	.37999	.41081	2.4342	.92499	40
21	.38026	115	.4322	488	39
22	053	149	.4302	477	38
23	080	183	.4282	466	37
24	107	217	.4262	455	36
25	.38134	.41251	2.4242	.92444	35
26	161	285	.4222	432	34
27	188	319	.4202	421	33
28	215	353	.4182	410	32
29	241	387	.4162	399	31
30	.38268	.41421	2.4142	.92388	30
31	295	455	.4122	377	29
32	322	490	.4102	366	28
33	349	524	.4083	355	27
34	376	558	.4063	343	26
35	.38403	.41592	2.4043	.92332	25
36	430	626	.4023	321	24
37	456	660	.4004	310	23
38	483	694	.3984	299	22
39	510	728	.3964	287	21
40	.38537	.41763	2.3945	.92276	20
41	564	797	.3925	265	19
42	591	831	.3906	254	18
43	617	865	.3886	243	17
44	644	899	.3867	231	16
45	.38671	.41933	2.3847	.92220	15
46	698	.41968	.3828	209	14
47	725	.42002	.3808	198	13
48	752	036	.3789	186	12
49	778	070	.3770	175	11
50	.38805	.42105	2.3750	.92164	10
51	832	139	.3731	152	9
52	859	173	.3712	141	8
53	886	207	.3693	130	7
54	912	242	.3673	119	6
55	.38939	.42276	2.3654	.92107	5
56	966	310	.3635	096	4
57	.38993	345	.3616	085	3
58	.39020	379	.3597	073	2
59	046	413	.3578	062	1
60	.39073	.42447	2.3559	.92050	0

67°

	cos	cot	tan	sin	

23°

	sin	tan	cot	cos	
0	.39073	.42447	2.3559	.92050	60
1	100	482	.3539	039	59
2	127	516	.3520	028	58
3	153	551	.3501	016	57
4	180	585	.3483	.92005	56
5	.39207	.42619	2.3464	.91994	55
6	234	654	.3445	982	54
7	260	688	.3426	971	53
8	287	722	.3407	959	52
9	314	757	.3388	948	51
10	.39341	.42791	2.3369	.91936	50
11	367	826	.3351	925	49
12	394	860	.3332	914	48
13	421	894	.3313	902	47
14	448	929	.3294	891	46
15	.39474	.42963	2.3276	.91879	45
16	501	.42998	.3257	868	44
17	528	.43032	.3238	856	43
18	555	067	.3220	845	42
19	581	101	.3201	833	41
20	.39608	.43136	2.3183	.91822	40
21	635	170	.3164	810	39
22	661	205	.3146	799	38
23	688	239	.3127	787	37
24	715	274	.3109	775	36
25	.39741	.43308	2.3090	.91764	35
26	768	343	.3072	752	34
27	795	378	.3053	741	33
28	822	412	.3035	729	32
29	848	447	.3017	718	31
30	.39875	.43481	2.2998	.91706	30
31	902	516	.2980	694	29
32	928	550	.2962	683	28
33	955	585	.2944	671	27
34	.39982	620	.2925	660	26
35	.40008	.43654	2.2907	.91648	25
36	035	689	.2889	636	24
37	062	724	.2871	625	23
38	088	758	.2853	613	22
39	115	793	.2835	601	21
40	.40141	.43828	2.2817	.91590	20
41	168	862	.2799	578	19
42	195	897	.2781	566	18
43	221	932	.2763	555	17
44	248	.43966	.2745	543	16
45	.40275	.44001	2.2727	.91531	15
46	301	036	.2709	519	14
47	328	071	.2691	508	13
48	355	105	.2673	496	12
49	381	140	.2655	484	11
50	.40408	.44175	2.2637	.91472	10
51	434	210	.2620	461	9
52	461	244	.2602	449	8
53	488	279	.2584	437	7
54	514	314	.2566	425	6
55	.40541	.44349	2.2549	.91414	5
56	567	384	.2531	402	4
57	594	418	.2513	390	3
58	621	453	.2496	378	2
59	647	488	.2478	366	1
60	.40674	.44523	2.2460	.91355	0

66°

	cos	cot	tan	sin	

24°

	sin	tan	cot	cos	
0	.40674	.44523	2.2460	.91355	60
1	700	558	.2443	343	59
2	727	593	.2425	331	58
3	753	627	.2408	319	57
4	780	662	.2390	307	56
5	.40806	.44697	2.2373	.91295	55
6	833	732	.2355	283	54
7	860	767	.2338	272	53
8	886	802	.2320	260	52
9	913	837	.2303	248	51
10	.40939	.44872	2.2286	.91236	50
11	966	907	.2268	224	49
12	.40992	942	.2251	212	48
13	.41019	.44977	.2234	200	47
14	045	.45012	.2216	188	46
15	.41072	.45047	2.2199	.91176	45
16	098	082	.2182	164	44
17	125	117	.2165	152	43
18	151	152	.2148	140	42
19	178	187	.2130	128	41
20	.41204	.45222	2.2113	.91116	40
21	231	257	.2096	104	39
22	257	292	.2079	092	38
23	284	327	.2062	080	37
24	310	362	.2045	068	36
25	.41337	.45397	2.2028	.91056	25
26	363	432	.2011	044	34
27	390	467	.1994	032	33
28	416	502	.1977	020	32
29	443	538	.1960	.91008	31
30	.41469	.45573	2.1943	.90996	30
31	496	608	.1926	984	29
32	522	643	.1909	972	28
33	549	678	.1892	960	27
34	575	713	.1876	948	26
35	.41602	.45748	2.1859	.90936	25
36	628	784	.1842	924	24
37	655	819	.1825	911	23
38	681	854	.1808	899	22
39	707	889	.1792	887	21
40	.41734	.45924	2.1775	.90875	20
41	760	960	.1758	863	19
42	787	45995	.1742	851	18
43	813	46030	.1725	839	17
44	840	065	.1708	826	16
45	.41866	.46101	2.1692	.90814	15
46	892	136	.1675	802	14
47	919	171	.1659	790	13
48	945	206	.1642	778	12
49	972	242	.1625	766	11
50	.41998	.46277	2.1609	.90753	10
51	42024	312	.1592	741	9
52	051	348	.1576	729	8
53	077	383	.1560	717	7
54	104	418	.1543	704	6
55	.42130	.46454	2.1527	.90692	5
56	156	469	.1510	680	4
57	183	525	.1494	668	3
58	209	560	.1478	655	2
59	235	595	.1461	643	1
60	.42262	.46631	2.1445	.90631	0
	cos	cot	tan	sin	

65°

25°

	sin	tan	cot	cos	
0	.42262	.46631	2.1445	.90631	60
1	288	666	.1429	618	59
2	315	702	.1413	606	58
3	341	737	.1396	594	57
4	367	772	.1380	582	56
5	.42394	.46808	2.1364	.90569	55
6	420	843	.1348	557	54
7	445	879	.1332	545	53
8	473	914	.1315	532	52
9	499	950	.1299	520	51
10	.42525	.46985	2.1283	.90507	50
11	552	47021	.1267	495	49
12	578	056	.1251	483	48
13	604	092	.1235	470	47
14	631	128	.1219	458	46
15	.42657	.47163	2.1203	.90446	45
16	683	199	.1187	433	44
17	709	234	.1171	421	43
18	736	270	.1155	408	42
19	762	305	.1139	396	41
20	.42788	.47341	2.1123	.90383	40
21	815	377	.1107	371	39
22	841	412	.1092	358	38
23	867	448	.1076	346	37
24	894	483	.1060	334	36
25	.42920	.47519	2.1044	.90321	35
26	946	555	.1028	309	34
27	972	590	.1013	296	33
28	42999	626	.0997	284	32
29	43025	662	.0981	271	31
30	.43051	.47698	2.0965	.90259	30
31	077	733	.0950	246	29
32	104	769	.0934	233	28
33	130	805	.0918	221	27
34	156	840	.0903	208	26
35	.43182	.47876	2.0887	.90196	25
36	209	912	.0872	183	24
37	235	948	.0856	171	23
38	261	47984	.0840	158	22
39	287	48019	.0825	146	21
40	.43313	.48055	2.0809	.90133	20
41	340	091	.0794	120	19
42	366	127	.0778	108	18
43	392	163	.0763	095	17
44	418	198	.0748	082	16
45	.43445	.48234	2.0732	.90070	15
46	471	270	.0717	057	14
47	497	306	.0701	045	13
48	523	342	.0686	032	12
49	549	378	.0671	019	11
50	.43575	.48414	2.0655	.90007	10
51	602	450	.0640	89994	9
52	628	486	.0625	981	8
53	654	521	.0609	968	7
54	680	557	.0594	956	6
55	.43706	.48593	2.0579	.89943	5
56	733	629	.0564	930	4
57	759	665	.0549	918	3
58	785	701	.0533	905	2
59	811	737	.0518	892	1
60	.43837	.48773	2.0503	.89879	0
	cos	cot	tan	sin	

64°

26°

	sin	tan	cot	cos	
0	.43837	.48773	2.0503	.89879	60
1	863	809	.0488	867	59
2	889	845	.0473	854	58
3	916	881	.0458	841	57
4	942	917	.0443	828	56
5	.43968	.48953	2.0428	.89816	55
6	.43994	.48989	.0413	803	54
7	.44020	.49026	.0398	790	53
8	046	062	.0383	777	52
9	072	098	.0368	764	51
10	.44098	.49134	2.0353	.89752	50
11	124	170	.0338	739	49
12	151	206	.0323	726	48
13	177	242	.0308	713	47
14	203	278	.0293	700	46
15	.44229	.49315	2.0278	.89687	45
16	255	351	.0263	674	44
17	281	387	.0248	662	43
18	307	423	.0233	649	42
19	333	459	.0219	636	41
20	.44359	.49495	2.0204	.89623	40
21	385	532	.0189	610	39
22	411	568	.0174	597	38
23	437	604	.0160	584	37
24	464	640	.0145	571	36
25	.44490	.49677	2.0130	.89558	35
26	516	713	.0115	545	34
27	542	749	.0101	532	33
28	568	786	.0086	519	32
29	594	822	.0072	506	31
30	.44620	.49858	2.0057	.89495	30
31	646	894	.0042	480	29
32	672	931	.0028	467	28
33	698	967	2.0013	454	27
34	724	50004	1.9999	441	26
35	.44750	.50040	1.9984	.89428	25
36	776	076	.9270	415	24
37	802	113	.9255	402	23
38	828	149	.9241	389	22
39	854	185	.9226	376	21
40	.44880	.50222	1.9912	.89363	20
41	906	258	.9897	350	19
42	932	295	.9883	337	18
43	958	331	.9868	324	17
44	.44984	368	.9854	311	16
45	.45010	.50404	1.9840	.89298	15
46	036	441	.9825	285	14
47	062	477	.9811	272	13
48	088	514	.9797	259	12
49	114	550	.9782	245	11
50	.45140	.50587	1.9768	.89232	10
51	166	623	.9754	219	9
52	192	660	.9740	206	8
53	218	696	.9725	193	7
54	243	733	.9711	180	6
55	.45269	.50769	1.9697	.89167	5
56	295	806	.9683	153	4
57	321	843	.9669	140	3
58	347	879	.9654	127	2
59	373	916	.9640	114	1
60	.45399	.50953	1.9626	.89101	0

63°

27°

	sin	tan	cot	cos	
0	.45399	.50953	1.9626	.89101	60
1	425	.50989	.9612	087	59
2	451	.51026	.9598	074	58
3	477	.063	.9584	061	57
4	503	.099	.9570	048	56
5	.45529	.51136	1.9556	.89035	55
6	554	173	.9542	021	54
7	580	209	.9528	.89008	53
8	606	246	.9514	.88995	52
9	632	283	.9500	981	51
10	.45658	.51319	1.9486	.88968	50
11	684	356	.9472	955	49
12	710	393	.9458	942	48
13	736	430	.9444	928	47
14	762	467	.9430	915	46
15	.45787	.51503	1.9416	.88902	45
16	813	540	.9402	888	44
17	839	577	.9388	875	43
18	865	614	.9375	862	42
19	891	651	.9361	848	41
20	.45917	.51688	1.9347	.88835	40
21	942	724	.9333	822	39
22	968	761	.9319	808	38
23	.45994	798	.9306	795	37
24	.46020	835	.9292	782	36
25	.46046	.51872	1.9278	.88768	35
26	072	909	.9265	755	34
27	097	946	.9251	741	33
28	123	.51983	.9237	728	32
29	149	.52020	.9223	715	31
30	.46175	.52057	1.9210	.88701	30
31	201	094	.9196	688	29
32	226	131	.9183	674	28
33	252	168	.9169	661	27
34	278	205	.9155	647	26
35	.46304	.52242	1.9142	.88634	25
36	330	279	.9128	620	24
37	355	316	.9115	607	23
38	381	353	.9101	593	22
39	407	390	.9088	580	21
40	.46433	.52427	1.9074	.88566	20
41	458	464	.9061	553	19
42	484	501	.9047	539	18
43	510	538	.9034	526	17
44	536	575	.9020	512	16
45	.46561	.52613	1.9007	.88499	15
46	587	650	.8993	485	14
47	613	687	.8980	472	13
48	639	724	.8967	458	12
49	664	761	.8953	445	11
50	.46690	.52798	1.8940	.88431	10
51	716	836	.8927	417	9
52	742	873	.8913	404	8
53	767	910	.8900	390	7
54	793	947	.8887	377	6
55	.46819	.52985	1.8873	.88363	5
56	844	.53022	.8860	349	4
57	870	059	.8847	336	3
58	896	096	.8834	322	2
59	921	134	.8820	308	1
60	.46947	.53171	1.8807	.88205	0

62°

28°

	sin	tan	cot	cos	
0	.46947	.53171	1.8807	.88295	60
1	.46973	.53208	.8794	.281	59
2	.46999	.53246	.8781	.267	58
3	.47024	.53283	.8768	.254	57
4	.47050	.53320	.8755	.240	56
5	.47076	.53358	1.8741	.88226	55
6	.101	.395	.8728	.213	54
7	.127	.432	.8715	.199	53
8	.153	.470	.8702	.185	52
9	.178	.507	.8689	.172	51
10	.47204	.53545	1.8676	.88158	50
11	.229	.582	.8663	.144	49
12	.255	.620	.8650	.130	48
13	.281	.657	.8637	.117	47
14	.306	.694	.8624	.103	46
15	.47332	.53732	1.8611	.88089	45
16	.358	.769	.8598	.075	44
17	.383	.807	.8585	.062	43
18	.409	.844	.8572	.048	42
19	.434	.882	.8559	.034	41
20	.47460	.53920	1.8546	.88020	40
21	.486	.957	.8533	.88006	39
22	.511	.53995	.8520	.87993	38
23	.537	.54032	.8507	.979	37
24	.562	.070	.8495	.965	36
25	.47588	.54107	1.8482	.87951	35
26	.614	.145	.8469	.937	34
27	.639	.183	.8456	.923	33
28	.665	.220	.8443	.909	32
29	.690	.258	.8430	.896	31
30	.47716	.54296	1.8418	.87882	30
31	.741	.333	.8405	.868	29
32	.767	.371	.8392	.854	28
33	.793	.409	.8379	.840	27
34	.818	.446	.8367	.826	26
35	.47844	.54484	1.8354	.87812	25
36	.869	.522	.8341	.798	24
37	.895	.560	.8329	.784	23
38	.920	.597	.8316	.770	22
39	.946	.635	.8303	.756	21
40	.47971	.54673	1.8291	.87743	20
41	.47997	.711	.8278	.729	19
42	.48022	.748	.8265	.715	18
43	.048	.786	.8253	.701	17
44	.073	.824	.8240	.687	16
45	.48099	.54862	1.8228	.87673	15
46	.124	.900	.8215	.659	14
47	.150	.938	.8202	.645	13
48	.175	.54975	.8190	.631	12
49	.201	.55013	.8177	.617	11
50	.48226	.55051	1.8165	.87603	10
51	.252	.089	.8152	.589	9
52	.277	.127	.8140	.575	8
53	.303	.165	.8127	.561	7
54	.328	.203	.8115	.546	6
55	.48354	.55241	1.8103	.87532	5
56	.379	.279	.8090	.518	4
57	.405	.317	.8078	.504	3
58	.430	.355	.8065	.490	2
59	.456	.393	.8053	.476	1
60	.48481	.55431	1.8040	.87462	0
	cos	cot	tan	sin	

61°

29°

	sin	tan	cot	cos	
0	.48481	.55431	1.8040	.87462	60
1	.506	.469	.8028	.448	59
2	.532	.507	.8016	.434	58
3	.557	.545	.8003	.420	57
4	.583	.583	.7991	.406	56
5	.48608	.55621	1.7979	.87391	55
6	.634	.659	.7966	.377	54
7	.659	.697	.7954	.363	53
8	.684	.736	.7942	.349	52
9	.710	.774	.7930	.335	51
10	.48735	.55812	1.7917	.87321	50
11	.761	.850	.7905	.306	49
12	.786	.888	.7893	.292	48
13	.811	.926	.7881	.278	47
14	.837	.55864	.7868	.264	46
15	.48862	.56003	1.7856	.87250	45
16	.888	.041	.7844	.235	44
17	.913	.079	.7832	.221	43
18	.938	.117	.7820	.207	42
19	.964	.156	.7808	.193	41
20	.48989	.56194	1.7796	.87178	40
21	.49014	.232	.7783	.164	39
22	.040	.270	.7771	.150	38
23	.065	.309	.7759	.136	37
24	.090	.347	.7747	.121	36
25	.49116	.56385	1.7735	.87107	35
26	.141	.424	.7723	.093	34
27	.166	.462	.7711	.079	33
28	.192	.501	.7699	.064	32
29	.217	.539	.7687	.050	31
30	.49242	.56577	1.7675	.87036	30
31	.268	.616	.7663	.021	29
32	.293	.654	.7651	.87007	28
33	.318	.693	.7639	.86993	27
34	.344	.731	.7627	.978	26
35	.49369	.56769	1.7615	.86964	25
36	.394	.808	.7603	.949	24
37	.419	.846	.7591	.935	23
38	.445	.885	.7579	.921	22
39	.470	.923	.7567	.906	21
40	.49495	.56962	1.7556	.86892	20
41	.521	.57000	.7544	.878	19
42	.546	.039	.7532	.863	18
43	.571	.078	.7520	.849	17
44	.596	.116	.7508	.834	16
45	.49622	.57155	1.7496	.86820	15
46	.647	.193	.7485	.805	14
47	.672	.232	.7473	.791	13
48	.697	.271	.7461	.777	12
49	.723	.309	.7449	.762	11
50	.49748	.57348	1.7437	.86748	10
51	.773	.386	.7426	.733	9
52	.798	.425	.7414	.719	8
53	.824	.464	.7402	.704	7
54	.849	.503	.7391	.690	6
55	.49874	.57541	1.7379	.86675	5
56	.899	.580	.7367	.661	4
57	.924	.619	.7355	.646	3
58	.950	.657	.7344	.632	2
59	.49975	.696	.7332	.617	1
60	.50000	.57735	1.7321	.86603	0
	cos	cot	tan	sin	

60°

30°

	sin	tan	cot	cos	
0	.50000	.57735	1.7321	.86603	60
1	.025	.774	.7309	.588	59
2	.050	.813	.7297	.573	58
3	.076	.851	.7286	.559	57
4	.101	.890	.7274	.544	56
5	.50126	.57929	1.7262	.86530	55
6	.151	.57968	.7251	.515	54
7	.176	.58007	.7239	.501	53
8	.201	.046	.7228	.486	52
9	.227	.085	.7216	.471	51
10	.50252	.58124	1.7205	.86457	50
11	.277	.162	.7193	.442	49
12	.302	.201	.7182	.427	48
13	.327	.240	.7170	.413	47
14	.352	.279	.7159	.398	46
15	.50377	.58318	1.7147	.86384	45
16	.403	.357	.7136	.369	44
17	.428	.396	.7124	.354	43
18	.453	.435	.7113	.340	42
19	.478	.474	.7102	.325	41
20	.50503	.58513	1.7090	.86310	40
21	.528	.552	.7079	.295	39
22	.553	.591	.7067	.281	38
23	.578	.631	.7056	.266	37
24	.603	.670	.7045	.251	36
25	.50628	.58709	1.7033	.86237	35
26	.654	.748	.7022	.222	34
27	.679	.787	.7011	.207	33
28	.704	.826	.6999	.192	32
29	.729	.865	.6988	.178	31
30	.50754	.58905	1.6977	.86163	30
31	.779	.944	.6965	.148	29
32	.804	.58983	.6954	.133	28
33	.829	.59022	.6943	.119	27
34	.854	.061	.6932	.104	26
35	.50879	.59101	1.6920	.86089	25
36	.904	.140	.6909	.074	24
37	.929	.179	.6898	.059	23
38	.954	.218	.6887	.045	22
39	.50979	.258	.6875	.030	21
40	.51004	.59297	1.6864	.86015	20
41	.029	.336	.6853	.86000	19
42	.054	.376	.6842	.85985	18
43	.079	.415	.6831	.970	17
44	.104	.454	.6820	.956	16
45	.51129	.59494	1.6808	.85941	15
46	.154	.533	.6797	.926	14
47	.179	.573	.6786	.911	13
48	.204	.612	.6775	.896	12
49	.229	.651	.6764	.881	11
50	.51254	.59691	1.6753	.85866	10
51	.279	.730	.6742	.851	9
52	.304	.770	.6731	.836	8
53	.329	.809	.6720	.821	7
54	.354	.849	.6709	.806	6
55	.51379	.59888	1.6698	.85792	5
56	.404	.928	.6687	.777	4
57	.429	.59967	.6676	.762	3
58	.454	.60007	.6665	.747	2
59	.479	.046	.6654	.732	1
60	.51504	.60086	1.6643	.85717	0

59°

31°

	sin	tan	cot	cos	
0	.51504	.60086	1.6643	.85717	60
1	.529	.126	.6632	.702	59
2	.554	.165	.6621	.687	58
3	.579	.205	.6610	.672	57
4	.604	.245	.6599	.657	56
5	.51628	.60284	1.6588	.85642	55
6	.653	.324	.6577	.627	54
7	.678	.364	.6566	.612	53
8	.703	.403	.6555	.597	52
9	.728	.443	.6545	.582	51
10	.51753	.60483	1.6534	.85567	50
11	.778	.522	.6523	.551	49
12	.803	.562	.6512	.536	48
13	.828	.602	.6501	.521	47
14	.852	.642	.6490	.506	46
15	.51877	.60681	1.6479	.85491	45
16	.902	.721	.6469	.476	44
17	.927	.761	.6458	.461	43
18	.952	.801	.6447	.446	42
19	.51977	.60881	1.6426	.85416	40
20	.52002	.60881	1.6426	.85416	40
21	.026	.921	.6415	.401	39
22	.051	.60960	.6404	.385	38
23	.076	.61000	.6393	.370	37
24	.101	.040	.6383	.355	36
25	.52126	.61080	1.6372	.85340	35
26	.151	.120	.6361	.325	34
27	.175	.160	.6351	.310	33
28	.200	.200	.6340	.294	32
29	.225	.240	.6329	.279	31
30	.52250	.61280	1.6319	.85264	30
31	.275	.320	.6308	.249	29
32	.299	.360	.6297	.234	28
33	.324	.400	.6287	.218	27
34	.349	.440	.6276	.203	26
35	.52374	.61480	1.6265	.85188	25
36	.399	.520	.6255	.173	24
37	.423	.561	.6244	.157	23
38	.448	.601	.6234	.142	22
39	.473	.641	.6223	.127	21
40	.52498	.61681	1.6212	.85112	20
41	.522	.721	.6202	.096	19
42	.547	.761	.6191	.081	18
43	.572	.801	.6181	.066	17
44	.597	.842	.6170	.051	16
45	.52621	.61882	1.6160	.85035	15
46	.646	.922	.6149	.020	14
47	.671	.61962	.6139	.85005	13
48	.696	.62003	.6128	.84989	12
49	.720	.043	.6118	.974	11
50	.52745	.62083	1.6107	.84959	10
51	.770	.124	.6097	.943	9
52	.794	.164	.6087	.928	8
53	.819	.204	.6076	.913	7
54	.844	.245	.6066	.897	6
55	.52869	.62285	1.6055	.84882	5
56	.893	.325	.6045	.866	4
57	.918	.366	.6034	.851	3
58	.943	.406	.6024	.836	2
59	.967	.446	.6014	.820	1
60	.52992	.62487	1.6003	.84805	0

58°

32°

	sin	tan	cot	cos	
0	.52992	.62487	1.6003	.84805	60
1	.53017	527	.5993	789	59
2	041	568	.5983	774	58
3	066	608	.5972	759	57
4	091	649	.5962	743	56
5	.53115	.62689	1.5952	.84728	55
6	140	730	.5941	712	54
7	164	770	.5931	697	53
8	189	811	.5921	681	52
9	214	852	.5911	666	51
10	.53238	.62892	1.5900	.84650	50
11	263	933	.5890	635	49
12	288	.62973	.5880	619	48
13	312	.63014	.5869	604	47
14	337	055	.5859	588	46
15	.53361	.63095	1.5849	.84573	45
16	386	136	.5839	557	44
17	411	177	.5829	542	43
18	435	217	.5818	526	42
19	460	258	.5808	511	41
20	.53484	.63299	1.5798	.84495	40
21	509	340	.5788	480	39
22	534	380	.5778	464	38
23	558	421	.5768	448	37
24	583	462	.5757	433	36
25	.53607	.63503	1.5747	.84417	35
26	632	544	.5737	402	34
27	656	584	.5727	386	33
28	681	625	.5717	370	32
29	705	666	.5707	355	31
30	.53730	.63707	1.5697	.84339	30
31	754	748	.5687	324	29
32	779	789	.5677	308	28
33	804	830	.5667	292	27
34	828	871	.5657	277	26
35	.53853	.63912	1.5647	.84261	25
36	877	953	.5637	245	24
37	902	.63994	.5627	230	23
38	926	.64035	.5617	214	22
39	951	076	.5607	198	21
40	.53975	.64117	1.5597	.84182	20
41	54000	158	.5587	167	19
42	024	199	.5577	151	18
43	049	240	.5567	135	17
44	073	281	.5557	120	16
45	.54097	.64322	1.5547	.84104	15
46	122	363	.5537	088	14
47	146	404	.5527	072	13
48	171	446	.5517	057	12
49	195	487	.5507	041	11
50	.54220	.64528	1.5497	.84025	10
51	244	569	.5487	84009	9
52	269	610	.5477	.83994	8
53	293	652	.5468	978	7
54	317	693	.5458	962	6
55	.54342	.64734	1.5448	.83946	5
56	366	775	.5438	930	4
57	391	817	.5428	913	3
58	415	858	.5418	899	2
59	440	899	.5408	883	1
60	.54464	.64941	1.5399	.83867	0

57°

cos	cot	tan	sin
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33°

	sin	tan	cot	cos	
0	.54464	.64941	1.5399	.83867	60
1	488	64982	.5389	851	59
2	513	65024	.5379	835	58
3	537	055	.5369	819	57
4	561	106	.5359	804	56
5	.54536	.65148	1.5350	.83788	55
6	610	189	.5340	772	54
7	635	231	.5330	756	53
8	659	272	.5320	740	52
9	683	314	.5311	724	51
10	.54708	.65355	1.5301	.83708	50
11	732	397	.5291	692	49
12	756	438	.5282	676	48
13	781	480	.5272	660	47
14	805	521	.5262	645	46
15	.54829	.65563	1.5253	.83629	45
16	854	604	.5243	613	44
17	878	646	.5233	597	43
18	902	688	.5224	581	42
19	927	729	.5214	565	41
20	.54951	.65771	1.5204	.83549	40
21	975	813	.5195	533	39
22	54999	854	.5185	517	38
23	55024	896	.5175	501	37
24	048	938	.5166	485	36
25	.55072	.65980	1.5156	.83469	35
26	097	66021	.5147	453	34
27	121	063	.5137	437	33
28	145	105	.5127	421	32
29	169	147	.5118	405	31
30	.55194	.66189	1.5108	.83389	30
31	218	230	.5099	373	29
32	242	272	.5089	356	28
33	266	314	.5080	340	27
34	291	356	.5070	324	26
35	.55315	.66398	1.5061	.83308	25
36	339	440	.5051	292	24
37	363	482	.5042	276	23
38	388	524	.5032	260	22
39	412	566	.5023	244	21
40	.55436	.66608	1.5013	.83228	20
41	460	650	.5004	212	19
42	484	692	.4994	195	18
43	509	734	.4985	179	17
44	533	776	.4975	163	16
45	.55557	.66818	1.4966	.83147	15
46	581	860	.4957	131	14
47	605	902	.4947	115	13
48	630	944	.4938	098	12
49	654	.66986	.4928	082	11
50	.55678	.67028	1.4919	.83066	10
51	702	071	.4910	050	9
52	726	113	.4900	034	8
53	750	155	.4891	017	7
54	775	197	.4882	83001	6
55	.55799	.67239	1.4872	.82985	5
56	823	282	.4863	969	4
57	847	324	.4854	953	3
58	871	366	.4844	936	2
59	895	409	.4835	920	1
60	.55919	.67451	1.4826	.82904	0

56°

cos	cot	tan	sin
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34°

	sin	tan	cot	cos	
0	.55919	.67451	1.4826	.82904	60
1	943	493	.4816	887	59
2	968	536	.4807	871	58
3	.55992	578	.4798	855	57
4	.56016	620	.4788	839	56
5	.56040	.67663	1.4779	.82822	55
6	064	705	.4770	806	54
7	088	748	.4761	790	53
8	112	790	.4751	773	52
9	136	832	.4742	757	51
10	.56160	.67875	1.4733	.82741	50
11	184	917	.4724	724	49
12	208	.67960	.4715	708	48
13	232	.68002	.4705	692	47
14	256	045	.4695	675	46
15	.56280	.68088	1.4687	.82659	45
16	305	130	.4678	643	44
17	329	173	.4669	626	43
18	353	215	.4659	610	42
19	377	258	.4650	593	41
20	.56401	.68301	1.4641	.82577	40
21	425	343	.4632	561	39
22	449	386	.4623	544	38
23	473	429	.4614	528	37
24	497	471	.4605	511	36
25	.56521	.68514	1.4596	.82495	35
26	545	557	.4586	478	34
27	569	600	.4577	462	33
28	593	642	.4568	446	32
29	617	685	.4559	429	31
30	.56641	.68728	1.4550	.82413	30
31	665	771	.4541	396	29
32	689	814	.4532	380	28
33	713	857	.4523	363	27
34	736	900	.4514	347	26
35	.56760	.68942	1.4505	.82330	25
36	784	.68985	.4496	314	24
37	808	.69028	.4487	297	23
38	832	071	.4478	281	22
39	856	114	.4469	264	21
40	.56880	.69157	1.4460	.82248	20
41	904	200	.4451	231	19
42	928	243	.4442	214	18
43	952	286	.4433	198	17
44	.56976	329	.4424	181	16
45	.57000	.69372	1.4415	.82165	15
46	024	416	.4406	148	14
47	047	459	.4397	132	13
48	071	502	.4388	115	12
49	095	545	.4379	098	11
50	.57119	.69588	1.4370	.82082	10
51	143	631	.4361	065	9
52	167	675	.4352	048	8
53	191	718	.4344	032	7
54	215	761	.4335	.82015	6
55	.57238	.69804	1.4326	.81999	5
56	262	847	.4317	982	4
57	286	891	.4308	965	3
58	310	934	.4299	949	2
59	334	.69977	.4290	932	1
60	.57358	.70021	1.4281	.81915	0

55°

cos	cot	tan	sin	'
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35°

	sin	tan	cot	cos	
0	.57358	.70021	1.4281	.81915	60
1	381	064	.4273	899	59
2	405	107	.4264	882	58
3	429	151	.4255	865	57
4	453	194	.4246	848	56
5	.57477	.70238	1.4237	.81832	55
6	501	281	.4229	815	54
7	524	325	.4220	798	53
8	548	368	.4211	782	52
9	572	412	.4202	765	51
10	.57596	.70455	1.4193	.81748	50
11	619	499	.4185	731	49
12	643	542	.4176	714	48
13	667	586	.4167	698	47
14	691	629	.4158	681	46
15	.57715	.70673	1.4150	.81664	45
16	728	717	.4141	647	44
17	762	760	.4132	631	43
18	786	804	.4124	614	42
19	810	848	.4115	597	41
20	.57833	.70891	1.4106	.81580	40
21	857	935	.4097	563	39
22	881	.70979	.4089	546	38
23	904	.71023	.4080	530	37
24	928	066	.4071	513	36
25	.57952	.71110	1.4063	.81496	35
26	976	154	.4054	479	34
27	.57999	198	.4045	462	33
28	.58023	242	.4037	445	32
29	047	285	.4028	428	31
30	.58070	.71329	1.4019	.81412	30
31	094	373	.4011	395	29
32	118	417	.4002	378	28
33	141	461	.3994	361	27
34	165	505	.3985	344	26
35	.58189	.71549	1.3976	.81327	25
36	212	533	.3968	310	24
37	236	637	.3959	293	23
38	260	681	.3951	276	22
39	283	725	.3942	259	21
40	.58307	.71769	1.3934	.81242	20
41	330	813	.3925	225	19
42	354	857	.3916	208	18
43	378	901	.3908	191	17
44	401	946	.3899	174	16
45	.58425	.71990	1.3891	.81157	15
46	449	.72034	.3882	140	14
47	472	078	.3874	123	13
48	496	122	.3865	106	12
49	519	167	.3857	089	11
50	.58543	.72211	1.3848	.81072	10
51	567	255	.3840	055	9
52	590	299	.3831	038	8
53	614	344	.3823	021	7
54	637	388	.3814	.81004	6
55	.58661	.72432	1.3806	.80987	5
56	684	477	.3798	970	4
57	708	521	.3789	953	3
58	731	565	.3781	936	2
59	755	610	.3772	919	1
60	.58779	.72654	1.3764	.80902	0

54°

cos	cot	tan	sin	'
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36°

	sin	tan	cot	cos	
0	.58779	.72654	1.3764	.80902	60
1	.802	.699	.3755	.885	59
2	.826	.743	.3747	.867	58
3	.849	.788	.3739	.850	57
4	.873	.832	.3730	.833	56
5	.58896	.72877	1.3722	.80816	55
6	.920	.921	.3713	.799	54
7	.943	.72966	.3705	.782	53
8	.967	.73010	.3697	.765	52
9	.58990	.055	.3688	.748	51
10	.59014	.73100	1.3680	.80730	50
11	.037	.144	.3672	.713	49
12	.061	.189	.3663	.696	48
13	.084	.234	.3655	.679	47
14	.108	.278	.3647	.662	46
15	.59131	.73323	1.3638	.80644	45
16	.154	.368	.3630	.627	44
17	.178	.413	.3622	.610	43
18	.201	.457	.3613	.593	42
19	.225	.502	.3605	.576	41
20	.59248	.73547	1.3597	.80558	40
21	.272	.592	.3588	.541	39
22	.295	.637	.3580	.524	38
23	.318	.681	.3572	.507	37
24	.342	.726	.3564	.489	36
25	.59365	.73771	1.3555	.80472	35
26	.389	.816	.3547	.455	34
27	.412	.861	.3539	.438	33
28	.436	.906	.3531	.420	32
29	.459	.951	.3522	.403	31
30	.59482	.73996	1.3514	.80386	30
31	.506	.74041	.3506	.368	29
32	.529	.086	.3498	.351	28
33	.552	.131	.3490	.334	27
34	.576	.176	.3481	.316	26
35	.59599	.74221	1.3473	.80299	25
36	.622	.267	.3465	.282	24
37	.646	.312	.3457	.264	23
38	.669	.357	.3449	.247	22
39	.693	.402	.3440	.230	21
40	.59716	.74447	1.3432	.80212	20
41	.739	.492	.3424	.195	19
42	.763	.538	.3416	.178	18
43	.786	.583	.3408	.160	17
44	.809	.628	.3400	.143	16
45	.59832	.74674	1.3392	.80125	15
46	.856	.719	.3384	.108	14
47	.879	.764	.3375	.091	13
48	.902	.810	.3367	.073	12
49	.926	.855	.3359	.056	11
50	.59949	.74900	1.3351	.80038	10
51	.972	.946	.3343	.021	9
52	.59995	.74991	.3335	.80003	8
53	.60019	.75037	.3327	.79986	7
54	.042	.082	.3319	.968	6
55	.60065	.75128	1.3311	.79951	5
56	.089	.173	.3303	.934	4
57	.112	.219	.3295	.916	3
58	.135	.264	.3287	.899	2
59	.158	.310	.3278	.881	1
60	.60182	.75355	1.3270	.79864	0

53°

37°

	sin	tan	cot	cos	
0	.60182	.75355	1.3270	.79864	60
1	.205	.401	.3262	.846	59
2	.228	.447	.3254	.829	58
3	.251	.492	.3246	.811	57
4	.274	.538	.3238	.793	56
5	.60298	.75584	1.3230	.79776	55
6	.321	.629	.3222	.758	54
7	.344	.675	.3214	.741	53
8	.367	.721	.3206	.723	52
9	.390	.767	.3198	.706	51
10	.60414	.75812	1.3190	.79688	50
11	.437	.858	.3182	.671	49
12	.460	.904	.3175	.653	48
13	.483	.950	.3167	.635	47
14	.506	.75996	.3159	.618	46
15	.60529	.76042	1.3151	.79600	45
16	.553	.088	.3143	.583	44
17	.576	.134	.3135	.565	43
18	.599	.180	.3127	.547	42
19	.622	.226	.3119	.530	41
20	.60645	.76272	1.3111	.79512	40
21	.668	.318	.3103	.494	39
22	.691	.364	.3095	.477	38
23	.714	.410	.3087	.459	37
24	.738	.456	.3079	.441	36
25	.60761	.76502	1.3072	.79424	35
26	.784	.548	.3064	.406	34
27	.807	.594	.3056	.388	33
28	.830	.640	.3048	.371	32
29	.853	.686	.3040	.353	31
30	.60876	.76733	1.3032	.79335	30
31	.899	.779	.3024	.318	29
32	.922	.825	.3017	.300	28
33	.945	.871	.3009	.282	27
34	.968	.918	.3001	.264	26
35	.60991	.76964	1.2993	.79247	25
36	.61015	.77010	.2985	.229	24
37	.038	.057	.2977	.211	23
38	.061	.103	.2970	.193	22
39	.084	.149	.2962	.176	21
40	.61107	.77196	1.2954	.79158	20
41	.130	.242	.2946	.140	19
42	.153	.289	.2938	.122	18
43	.176	.335	.2931	.105	17
44	.199	.382	.2923	.087	16
45	.61222	.77428	1.2915	.79069	15
46	.245	.475	.2907	.051	14
47	.268	.521	.2900	.033	13
48	.291	.568	.2892	.79016	12
49	.314	.615	.2884	.78998	11
50	.61337	.77661	1.2876	.78980	10
51	.360	.708	.2869	.962	9
52	.383	.754	.2861	.944	8
53	.406	.801	.2853	.926	7
54	.429	.848	.2846	.908	6
55	.61451	.77895	1.2838	.78891	5
56	.474	.941	.2830	.873	4
57	.497	.77988	.2822	.855	3
58	.520	.78035	.2815	.837	2
59	.543	.082	.2807	.819	1
60	.61566	.78129	1.2799	.78801	0

52°

38°

'	sin	tan	cot	cos	'
0	.61566	.78129	1.2799	.78801	60
1	589	175	.2792	783	59
2	612	222	.2784	765	58
3	635	269	.2776	747	57
4	658	316	.2769	729	56
5	.61681	.78363	1.2761	.78711	55
6	704	410	.2753	694	54
7	726	457	.2746	676	53
8	749	504	.2738	658	52
9	772	551	.2731	640	51
10	.61795	.78598	1.2723	.78622	50
11	818	645	.2715	604	49
12	841	692	.2708	586	48
13	864	739	.2700	568	47
14	887	786	.2693	550	46
15	.61909	.78834	1.2685	.78532	45
16	932	881	.2677	514	44
17	955	928	.2670	496	43
18	.61978	.78975	.2662	478	42
19	.62001	.79022	.2655	460	41
20	.62024	.79070	1.2647	.78442	40
21	046	117	.2640	424	39
22	069	164	.2632	405	38
23	092	212	.2624	387	37
24	115	259	.2617	369	36
25	.62138	.79306	1.2609	.78351	35
26	160	354	.2602	333	34
27	183	401	.2594	315	33
28	206	449	.2587	297	32
29	229	496	.2579	279	31
30	.62251	.79544	1.2572	.78261	30
31	274	591	.2564	243	29
32	297	639	.2557	225	28
33	320	686	.2549	206	27
34	342	734	.2542	188	26
35	.62365	.79781	1.2534	.78170	25
36	388	829	.2527	152	24
37	411	877	.2519	134	23
38	433	924	.2512	116	22
39	456	.79972	.2504	098	21
40	.62479	.80020	1.2497	.78079	20
41	502	067	.2489	061	19
42	524	115	.2482	043	18
43	547	163	.2475	025	17
44	570	211	.2467	.78007	16
45	.62592	.80258	1.2460	.77988	15
46	615	306	.2452	970	14
47	638	354	.2445	952	13
48	660	402	.2437	934	12
49	683	450	.2430	916	11
50	.62706	.80498	1.2423	.77897	10
51	728	546	.2415	879	9
52	751	594	.2408	861	8
53	774	642	.2401	843	7
54	796	690	.2393	824	6
55	.62819	.80738	1.2386	.77806	5
56	842	786	.2378	788	4
57	864	834	.2371	769	3
58	887	882	.2364	751	2
59	909	930	.2356	733	1
60	.62932	.80978	1.2349	.77715	0
	cos	cot	tan	sin	'

51°

39°

'	sin	tan	cot	cos	'
0	.62932	.80978	1.2349	.77715	60
1	955	.81027	.2342	696	59
2	.62977	075	.2334	678	58
3	.63000	123	.2327	660	57
4	022	171	.2320	641	56
5	.63045	.81220	1.2312	.77623	55
6	068	268	.2305	605	54
7	090	316	.2298	586	53
8	113	364	.2290	568	52
9	135	413	.2283	550	51
10	.63158	.81461	1.2276	.77531	50
11	180	510	.2268	513	49
12	203	558	.2261	494	48
13	225	606	.2254	476	47
14	248	655	.2247	458	46
15	.63271	.81703	1.2239	.77439	45
16	293	752	.2232	421	44
17	316	800	.2225	402	43
18	338	849	.2218	384	42
19	361	898	.2210	366	41
20	.63383	.81946	1.2203	.77347	40
21	406	.81995	.2196	329	39
22	428	82044	.2189	310	38
23	451	092	.2181	292	37
24	473	141	.2174	273	36
25	.63496	.82190	1.2167	.77255	35
26	518	238	.2160	236	34
27	540	287	.2153	218	33
28	563	336	.2145	199	32
29	585	385	.2138	181	31
30	.63608	.82434	1.2131	.77162	30
31	630	483	.2124	144	29
32	653	531	.2117	125	28
33	675	580	.2109	107	27
34	698	629	.2102	088	26
35	.63720	.82678	1.2095	.77070	25
36	742	727	.2088	051	24
37	765	776	.2081	033	23
38	787	825	.2074	.77014	22
39	810	874	.2066	.76996	21
40	.63832	.82923	1.2059	.76977	20
41	854	82972	.2052	959	19
42	877	83022	.2045	940	18
43	899	071	.2038	921	17
44	922	120	.2031	903	16
45	.63944	.83169	1.2024	.76884	15
46	966	218	.2017	866	14
47	.63989	268	.2009	847	13
48	64011	317	.2002	828	12
49	033	366	.1995	810	11
50	.64056	.83415	1.1988	.76791	10
51	078	465	.1981	772	9
52	100	514	.1974	754	8
53	123	564	.1967	735	7
54	145	613	.1960	717	6
55	.64167	.83662	1.1953	.76698	5
56	190	712	.1946	679	4
57	212	761	.1939	661	3
58	234	811	.1932	642	2
59	256	860	.1925	623	1
60	.64279	.83910	1.1918	.76604	0
	cos	cot	tan	sin	'

50°

40°

	sin	tan	cot	cos	
0	.64279	.83910	1.1918	.76604	60
1	301	.83960	.1910	586	59
2	323	.84009	.1903	567	58
3	346	.84059	.1896	548	57
4	368	.84108	.1889	530	56
5	.64390	.84158	1.1882	.76511	55
6	412	.208	.1875	492	54
7	435	.258	.1868	473	53
8	457	.307	.1861	455	52
9	479	.357	.1854	436	51
10	.64501	.84407	1.1847	.76417	50
11	524	.457	.1840	398	49
12	546	.507	.1833	380	48
13	568	.556	.1826	361	47
14	590	.606	.1819	342	46
15	.64612	.84656	1.1812	.76323	45
16	635	.706	.1806	304	44
17	657	.756	.1799	286	43
18	679	.806	.1792	267	42
19	701	.856	.1785	248	41
20	.64723	.84906	1.1778	.76229	40
21	746	.84956	.1771	210	39
22	768	.85006	.1764	192	38
23	790	.85057	.1757	173	37
24	812	.85107	.1750	154	36
25	.64834	.85157	1.1743	.76135	35
26	856	.207	.1736	116	34
27	878	.257	.1729	97	33
28	901	.308	.1722	78	32
29	923	.358	.1715	59	31
30	.64945	.85408	1.1708	.76041	30
31	967	.458	.1702	42	29
32	.64989	.85458	.1695	.76003	28
33	.65011	.85509	.1688	.75984	27
34	.65033	.85560	.1681	.75965	26
35	.65055	.85611	.1674	.75946	25
36	.65077	.85662	.1667	.75927	24
37	.65100	.85713	.1660	.75908	23
38	.65122	.85764	.1653	.75889	22
39	.65144	.85815	.1647	.75870	21
40	.65166	.85866	1.1640	.75851	20
41	.65188	.85917	.1633	832	19
42	.65210	.85968	.1626	813	18
43	.65232	.86019	.1619	794	17
44	.65254	.86070	.1612	775	16
45	.65276	.86121	1.1606	.75756	15
46	.65298	.86172	.1599	738	14
47	.65320	.86223	.1592	719	13
48	.65342	.86274	.1585	700	12
49	.65364	.86325	.1578	680	11
50	.65386	.86376	1.1571	.75661	10
51	.65408	.86427	.1565	642	9
52	.65430	.86478	.1558	623	8
53	.65452	.86529	.1551	604	7
54	.65474	.86580	.1544	585	6
55	.65496	.86631	1.1538	.75566	5
56	.65518	.86682	.1531	547	4
57	.65540	.86733	.1524	528	3
58	.65562	.86784	.1517	509	2
59	.65584	.86835	.1510	490	1
60	.65606	.86886	1.1504	.75471	0
	cos	cot	tan	sin	

40°

41°

	sin	tan	cot	cos	
0	.65606	.86929	1.1534	.75471	60
1	628	.86980	.1497	452	59
2	650	.87031	.1490	433	58
3	672	.87082	.1483	414	57
4	694	.87133	.1477	395	56
5	.65716	.87184	1.1470	.75375	55
6	738	.236	.1463	356	54
7	759	.287	.1456	337	53
8	781	.338	.1450	318	52
9	803	.389	.1443	299	51
10	.65825	.87441	1.1436	.75280	50
11	847	.492	.1430	261	49
12	869	.543	.1423	241	48
13	891	.595	.1416	222	47
14	913	.646	.1410	203	46
15	.65935	.87698	1.1403	.75184	45
16	956	.749	.1396	165	44
17	.65978	.87801	.1389	146	43
18	.66000	.87904	.1383	126	42
19	.66022	.88007	.1376	107	41
20	.66044	.88110	1.1369	.75088	40
21	.66066	.88213	.1363	86	39
22	.66088	.88316	.1356	65	38
23	.66110	.88419	.1349	44	37
24	.66131	.88522	.1343	23	36
25	.66153	.88625	1.1336	.74992	35
26	.66175	.88728	.1329	97	34
27	.66197	.88831	.1323	76	33
28	.66218	.88934	.1316	55	32
29	.66240	.89037	.1310	34	31
30	.66262	.89140	1.1303	.74896	30
31	.66284	.89243	.1296	87	29
32	.66306	.89346	.1290	66	28
33	.66327	.89449	.1283	45	27
34	.66349	.89552	.1276	24	26
35	.66371	.89655	1.1270	.74799	25
36	.66393	.89758	.1263	78	24
37	.66414	.89861	.1257	57	23
38	.66436	.89964	.1250	36	22
39	.66458	.90067	.1243	15	21
40	.66480	.90170	1.1237	.74703	20
41	.66501	.90273	.1230	68	19
42	.66523	.90376	.1224	47	18
43	.66545	.90479	.1217	26	17
44	.66566	.90582	.1211	5	16
45	.66588	.90685	1.1204	.74606	15
46	.66610	.90788	.1197	58	14
47	.66632	.90891	.1191	37	13
48	.66653	.90994	.1184	16	12
49	.66675	.91097	.1178	4	11
50	.66697	.91200	1.1171	.74509	10
51	.66718	.91303	.1165	48	9
52	.66740	.91406	.1158	27	8
53	.66762	.91509	.1152	6	7
54	.66783	.91612	.1145	4	6
55	.66805	.91715	1.1139	.74412	5
56	.66827	.91818	.1132	32	4
57	.66848	.91921	.1126	11	3
58	.66870	.92024	.1119	9	2
59	.66891	.92127	.1113	7	1
60	.66913	.92230	1.1106	.74314	0
	cos	cot	tan	sin	

48°

42°

'	sin	tan	cot	cos	'
0	.66913	.90040	1.1106	.74314	60
1	935	093	.1100	295	59
2	956	146	.1093	276	58
3	978	199	.1087	256	57
4	66999	251	.1080	237	56
5	67021	90304	1.1074	.74217	55
6	043	357	.1067	198	54
7	064	410	.1061	178	53
8	086	463	.1054	159	52
9	107	516	.1048	139	51
10	67129	90569	1.1041	.74120	50
11	151	621	.1035	100	49
12	172	674	.1028	080	48
13	194	727	.1022	061	47
14	215	781	.1016	041	46
15	67237	90834	1.1009	.74022	45
16	258	887	.1003	74002	44
17	280	940	.0996	73983	43
18	301	90993	.0990	963	42
19	323	91046	.0983	944	41
20	67344	91099	1.0977	.73924	40
21	366	153	.0971	904	39
22	387	206	.0964	885	38
23	409	259	.0958	865	37
24	430	313	.0951	846	36
25	67452	91366	1.0945	.73826	35
26	473	419	.0939	806	34
27	495	473	.0932	787	33
28	516	526	.0926	767	32
29	538	580	.0919	747	31
30	67559	91633	1.0913	.73728	30
31	580	687	.0907	708	29
32	602	740	.0900	688	28
33	623	794	.0894	669	27
34	645	847	.0888	649	26
35	67666	91901	1.0881	.73629	25
36	688	91955	.0875	610	24
37	709	92008	.0869	590	23
38	730	062	.0862	570	22
39	752	116	.0856	551	21
40	67773	92170	1.0850	.73531	20
41	795	224	.0843	511	19
42	816	277	.0837	491	18
43	837	331	.0831	472	17
44	859	385	.0824	452	16
45	67880	92439	1.0818	.73432	15
46	901	493	.0812	413	14
47	923	547	.0805	393	13
48	944	601	.0799	373	12
49	965	655	.0793	353	11
50	67987	92709	1.0786	.73333	10
51	68008	763	.0780	314	9
52	029	817	.0774	294	8
53	051	872	.0768	274	7
54	072	926	.0761	254	6
55	68093	92980	1.0755	.73234	5
56	115	93034	.0749	215	4
57	136	088	.0742	195	3
58	157	143	.0736	175	2
59	179	197	.0730	155	1
60	68200	93252	1.0724	.73135	0
	cos	cot	tan	sin	'

47°

43°

'	sin	tan	cot	cos	'
0	.68200	.93252	1.0724	.73135	60
1	221	306	.0717	116	59
2	242	360	.0711	096	58
3	264	415	.0705	076	57
4	285	469	.0699	056	56
5	68306	93524	1.0692	.73036	55
6	327	578	.0686	73016	54
7	349	633	.0680	72996	53
8	370	688	.0674	976	52
9	391	742	.0668	957	51
10	68412	93797	1.0661	.72937	50
11	434	852	.0655	917	49
12	455	906	.0649	897	48
13	476	93961	.0643	877	47
14	497	94016	.0637	857	46
15	68518	94071	1.0630	.72837	45
16	539	125	.0624	817	44
17	561	180	.0618	797	43
18	582	235	.0612	777	42
19	603	290	.0606	757	41
20	68624	94345	1.0599	.72737	40
21	645	430	.0593	717	39
22	666	455	.0587	697	38
23	688	510	.0581	677	37
24	709	565	.0575	657	36
25	68730	94620	1.0569	.72637	35
26	751	676	.0562	617	34
27	772	731	.0556	597	33
28	793	786	.0550	577	32
29	814	841	.0544	557	31
30	68835	94896	1.0528	.72537	30
31	857	94952	.0532	517	29
32	878	95007	.0526	497	28
33	899	062	.0519	477	27
34	920	118	.0513	457	26
35	68941	95173	1.0507	.72437	25
36	962	229	.0501	417	24
37	68983	284	.0495	397	23
38	69004	340	.0489	377	22
39	025	395	.0483	357	21
40	69046	95451	1.0477	.72337	20
41	067	536	.0470	317	19
42	088	592	.0464	297	18
43	109	618	.0458	277	17
44	130	673	.0452	257	16
45	69151	95729	1.0446	.72236	15
46	172	785	.0440	216	14
47	193	841	.0434	196	13
48	214	897	.0428	176	12
49	235	95952	.0422	156	11
50	69256	96008	1.0416	.72136	10
51	277	064	.0410	116	9
52	298	120	.0404	095	8
53	319	176	.0398	075	7
54	340	232	.0392	055	6
55	69361	96268	1.0385	.72035	5
56	382	344	.0379	72015	4
57	403	400	.0373	71995	3
58	424	457	.0367	974	2
59	445	513	.0361	954	1
60	69466	96569	1.0355	.71934	0
	cos	cot	tan	sin	'

46°

44°

'	sin	tan	cot	cos	'
0	.69466	.96569	1.0355	.71934	60
1	487	625	.0349	914	59
2	508	681	.0343	894	58
3	529	738	.0337	873	57
4	549	794	.0331	853	56
5	.69570	.96850	1.0325	.71833	55
6	591	907	.0319	813	54
7	612	.96963	.0313	792	53
8	633	.97020	.0307	772	52
9	654	076	.0301	752	51
10	.69675	.97133	1.0295	.71732	50
11	696	189	.0289	711	49
12	717	246	.0283	691	48
13	737	302	.0277	671	47
14	758	359	.0271	650	46
15	.69779	.97416	1.0265	.71630	45
16	800	472	.0259	610	44
17	821	529	.0253	590	43
18	842	586	.0247	569	42
19	862	643	.0241	549	41
20	.69883	.97700	1.0235	.71529	40
21	904	756	.0230	508	39
22	925	813	.0224	488	38
23	946	870	.0218	468	37
24	966	927	.0212	447	36
25	.69987	.97984	1.0206	.71427	35
26	.70008	.98041	.0200	407	34
27	029	098	.0194	386	33
28	049	155	.0188	366	32
29	070	213	.0182	345	31
30	.70091	.98270	1.0176	.71325	30
31	112	327	.0170	305	29
32	132	384	.0164	284	28
33	153	441	.0158	264	27
34	174	499	.0152	243	26
35	.70195	.98556	1.0147	.71223	25
36	215	613	.0141	203	24
37	236	671	.0135	182	23
38	257	728	.0129	162	22
39	277	786	.0123	141	21
40	.70298	.98843	1.0117	.71121	20
41	319	901	.0111	100	19
42	339	.98958	.0105	080	18
43	360	.99016	.0099	059	17
44	381	073	.0094	039	16
45	.70401	.99131	1.0088	.71019	15
46	422	189	.0082	.70998	14
47	443	247	.0076	978	13
48	463	304	.0070	957	12
49	484	362	.0064	937	11
50	.70505	.99420	1.0058	.70916	10
51	525	478	.0052	896	9
52	546	536	.0047	875	8
53	567	594	.0041	855	7
54	587	652	.0035	834	6
55	.70608	.99710	1.0029	.70813	5
56	628	768	.0023	793	4
57	649	826	.0017	772	3
58	670	884	.0012	752	2
59	690	.99942	.0006	731	1
60	.70711	1.0000	1.0000	.70711	0
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