

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	
0'	.0000	.0001	.0003	.0007	.0012	.0019	.0027	.0037	.0049	.0062	60'
2'	.0000	.0001	.0003	.0007	.0012	.0019	.0028	.0038	.0049	.0062	58'
4'	.0000	.0001	.0003	.0007	.0013	.0020	.0028	.0038	.0049	.0062	56'
6'	.0000	.0001	.0003	.0007	.0013	.0020	.0028	.0038	.0050	.0063	54'
8'	.0000	.0001	.0003	.0007	.0013	.0020	.0029	.0039	.0050	.0063	52'
10'	.0000	.0001	.0004	.0008	.0013	.0020	.0029	.0039	.0051	.0064	50'
12'	.0000	.0001	.0004	.0008	.0013	.0021	.0029	.0039	.0051	.0064	48'
14'	.0000	.0001	.0004	.0008	.0014	.0021	.0030	.0040	.0052	.0065	46'
16'	.0000	.0001	.0004	.0008	.0014	.0021	.0030	.0040	.0052	.0065	44'
18'	.0000	.0001	.0004	.0008	.0014	.0021	.0030	.0041	.0052	.0066	42'
20'	.0000	.0001	.0004	.0008	.0014	.0022	.0031	.0041	.0053	.0066	40'
22'	.0000	.0001	.0004	.0009	.0015	.0022	.0031	.0041	.0053	.0067	38'
24'	.0000	.0001	.0004	.0009	.0015	.0022	.0031	.0042	.0054	.0067	36'
26'	.0000	.0002	.0005	.0009	.0015	.0022	.0031	.0042	.0054	.0068	34'
28'	.0000	.0002	.0005	.0009	.0015	.0023	.0032	.0042	.0054	.0068	32'
30'	.0000	.0002	.0005	.0009	.0015	.0023	.0032	.0043	.0055	.0069	30'
32'	.0000	.0002	.0005	.0010	.0016	.0023	.0032	.0043	.0055	.0069	28'
34'	.0000	.0002	.0005	.0010	.0016	.0024	.0033	.0044	.0056	.0070	26'
36'	.0000	.0002	.0005	.0010	.0016	.0024	.0033	.0044	.0056	.0070	24'
38'	.0000	.0002	.0005	.0010	.0016	.0024	.0033	.0044	.0057	.0071	22'
40'	.0000	.0002	.0005	.0010	.0017	.0024	.0034	.0045	.0057	.0071	20'
42'	.0000	.0002	.0006	.0010	.0017	.0025	.0034	.0045	.0058	.0071	18'
44'	.0000	.0002	.0006	.0011	.0017	.0025	.0034	.0045	.0058	.0072	16'
46'	.0000	.0002	.0006	.0011	.0017	.0025	.0035	.0046	.0058	.0072	14'
48'	.0000	.0002	.0006	.0011	.0018	.0026	.0035	.0046	.0059	.0073	12'
50'	.0001	.0003	.0006	.0011	.0018	.0026	.0036	.0047	.0059	.0073	10'
52'	.0001	.0003	.0006	.0011	.0018	.0026	.0036	.0047	.0060	.0074	8'
54'	.0001	.0003	.0006	.0012	.0018	.0026	.0036	.0047	.0060	.0074	6'
56'	.0001	.0003	.0007	.0012	.0019	.0027	.0037	.0048	.0061	.0075	4'
58'	.0001	.0003	.0007	.0012	.0019	.0027	.0037	.0048	.0061	.0075	2'
60'	.0001	.0003	.0007	.0012	.0019	.0027	.0037	.0049	.0062	.0076	0'
	359°	358°	357°	356°	355°	354°	353°	352°	351°	350°	

	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°	
0'	.0076	.0092	.0109	.0128	.0149	.0170	.0194	.0218	.0245	.0272	60'
2'	.0076	.0092	.0110	.0129	.0149	.0171	.0194	.0219	.0246	.0273	58'
4'	.0077	.0093	.0110	.0129	.0150	.0172	.0195	.0220	.0247	.0274	56'
6'	.0077	.0094	.0111	.0130	.0151	.0173	.0196	.0221	.0247	.0275	54'
8'	.0078	.0094	.0112	.0131	.0151	.0173	.0197	.0222	.0248	.0276	52'
10'	.0079	.0095	.0112	.0131	.0152	.0174	.0198	.0223	.0249	.0277	50'
12'	.0079	.0095	.0113	.0132	.0153	.0175	.0199	.0224	.0250	.0278	48'
14'	.0080	.0096	.0114	.0133	.0153	.0176	.0199	.0224	.0251	.0279	46'
16'	.0080	.0096	.0114	.0133	.0154	.0176	.0200	.0225	.0252	.0280	44'
18'	.0081	.0097	.0115	.0134	.0155	.0177	.0201	.0226	.0253	.0281	42'
20'	.0081	.0097	.0115	.0135	.0156	.0178	.0202	.0227	.0254	.0282	40'
22'	.0082	.0098	.0116	.0135	.0156	.0179	.0203	.0228	.0255	.0283	38'
24'	.0082	.0099	.0117	.0136	.0157	.0180	.0203	.0229	.0256	.0284	36'
26'	.0083	.0099	.0117	.0137	.0158	.0180	.0204	.0230	.0257	.0285	34'
28'	.0083	.0100	.0118	.0137	.0159	.0181	.0205	.0231	.0257	.0286	32'
30'	.0084	.0100	.0119	.0138	.0159	.0182	.0206	.0231	.0258	.0287	30'
32'	.0084	.0101	.0119	.0139	.0160	.0183	.0207	.0232	.0259	.0288	28'
34'	.0085	.0102	.0120	.0140	.0161	.0183	.0208	.0233	.0260	.0289	26'
36'	.0085	.0102	.0120	.0140	.0161	.0184	.0208	.0234	.0261	.0290	24'
38'	.0086	.0103	.0121	.0141	.0162	.0185	.0209	.0235	.0262	.0291	22'
40'	.0086	.0103	.0122	.0142	.0163	.0186	.0210	.0236	.0263	.0292	20'
42'	.0087	.0104	.0122	.0142	.0164	.0187	.0211	.0237	.0264	.0293	18'
44'	.0087	.0104	.0123	.0143	.0164	.0187	.0212	.0238	.0265	.0294	16'
46'	.0088	.0105	.0124	.0144	.0165	.0188	.0213	.0238	.0266	.0295	14'
48'	.0089	.0106	.0124	.0144	.0166	.0189	.0213	.0239	.0267	.0296	12'
50'	.0089	.0106	.0125	.0145	.0167	.0190	.0214	.0240	.0268	.0297	10'
52'	.0090	.0107	.0126	.0146	.0167	.0190	.0215	.0241	.0269	.0298	8'
54'	.0090	.0107	.0126	.0146	.0168	.0191	.0216	.0242	.0270	.0299	6'
56'	.0091	.0108	.0127	.0147	.0169	.0192	.0217	.0243	.0271	.0300	4'
58'	.0091	.0109	.0127	.0148	.0170	.0193	.0218	.0244	.0271	.0301	2'
60'	.0092	.0109	.0128	.0149	.0170	.0194	.0218	.0245	.0272	.0302	0'
	349°	348°	347°	346°	345°	344°	343°	342°	341°	340°	

	20°	21°	22°	23°	24°	25°	26°	27°	28°	29°	
0'	.0302	.0332	.0364	.0397	.0432	.0468	.0506	.0545	.0585	.0627	60'
2'	.0303	.0333	.0365	.0399	.0433	.0470	.0507	.0546	.0587	.0628	58'
4'	.0304	.0334	.0366	.0400	.0435	.0471	.0509	.0548	.0588	.0630	56'
6'	.0305	.0335	.0367	.0401	.0436	.0472	.0510	.0549	.0589	.0631	54'
8'	.0306	.0336	.0368	.0402	.0437	.0473	.0511	.0550	.0591	.0633	52'
10'	.0307	.0337	.0370	.0403	.0438	.0475	.0512	.0552	.0592	.0634	50'
12'	.0308	.0338	.0371	.0404	.0439	.0476	.0514	.0553	.0593	.0635	48'
14'	.0309	.0339	.0372	.0405	.0441	.0477	.0515	.0554	.0595	.0637	46'
16'	.0310	.0340	.0373	.0407	.0442	.0478	.0516	.0556	.0596	.0638	44'
18'	.0311	.0342	.0374	.0408	.0443	.0480	.0518	.0557	.0598	.0640	42'
20'	.0312	.0343	.0375	.0409	.0444	.0481	.0519	.0558	.0599	.0641	40'
22'	.0313	.0344	.0376	.0410	.0445	.0482	.0520	.0560	.0600	.0643	38'
24'	.0314	.0345	.0377	.0411	.0447	.0483	.0521	.0561	.0602	.0644	36'
26'	.0315	.0346	.0378	.0412	.0448	.0485	.0523	.0562	.0603	.0645	34'
28'	.0316	.0347	.0379	.0414	.0449	.0486	.0524	.0564	.0605	.0647	32'
30'	.0317	.0348	.0381	.0415	.0450	.0487	.0525	.0565	.0606	.0648	30'
32'	.0318	.0349	.0382	.0416	.0451	.0488	.0527	.0566	.0607	.0650	28'
34'	.0319	.0350	.0383	.0417	.0453	.0490	.0528	.0568	.0609	.0651	26'
36'	.0320	.0351	.0384	.0418	.0454	.0491	.0529	.0569	.0610	.0653	24'
38'	.0321	.0352	.0385	.0419	.0455	.0492	.0531	.0570	.0611	.0654	22'
40'	.0322	.0353	.0386	.0421	.0456	.0493	.0532	.0572	.0613	.0655	20'
42'	.0323	.0354	.0387	.0422	.0457	.0495	.0533	.0573	.0614	.0657	18'
44'	.0324	.0355	.0388	.0423	.0459	.0496	.0534	.0574	.0616	.0658	16'
46'	.0325	.0356	.0390	.0424	.0460	.0497	.0536	.0576	.0617	.0660	14'
48'	.0326	.0358	.0391	.0425	.0461	.0498	.0537	.0577	.0618	.0661	12'
50'	.0327	.0359	.0392	.0426	.0462	.0500	.0538	.0578	.0620	.0663	10'
52'	.0328	.0360	.0393	.0428	.0464	.0501	.0540	.0580	.0621	.0664	8'
54'	.0329	.0361	.0394	.0429	.0465	.0502	.0541	.0581	.0623	.0666	6'
56'	.0330	.0362	.0395	.0430	.0466	.0503	.0542	.0583	.0624	.0667	4'
58'	.0331	.0363	.0396	.0431	.0467	.0505	.0544	.0584	.0625	.0668	2'
60'	.0332	.0364	.0397	.0432	.0468	.0506	.0545	.0585	.0627	.0670	0'
	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	

	30°	31°	32°	33°	34°	35°	36°	37°	38°	39°	
0'	.0670	.0714	.0760	.0807	.0855	.0904	.0955	.1007	.1060	.1114	60'
2'	.0671	.0716	.0761	.0808	.0856	.0906	.0957	.1009	.1062	.1116	58'
4'	.0673	.0717	.0763	.0810	.0858	.0908	.0958	.1010	.1064	.1118	56'
6'	.0674	.0719	.0764	.0811	.0860	.0909	.0960	.1012	.1065	.1120	54'
8'	.0676	.0720	.0766	.0813	.0861	.0911	.0962	.1014	.1067	.1122	52'
10'	.0677	.0722	.0767	.0815	.0863	.0913	.0963	.1016	.1069	.1123	50'
12'	.0679	.0723	.0769	.0816	.0865	.0914	.0965	.1017	.1071	.1125	48'
14'	.0680	.0725	.0771	.0818	.0866	.0916	.0967	.1019	.1073	.1127	46'
16'	.0682	.0726	.0772	.0819	.0868	.0918	.0969	.1021	.1074	.1129	44'
18'	.0683	.0728	.0774	.0821	.0870	.0919	.0970	.1023	.1076	.1131	42'
20'	.0684	.0729	.0775	.0823	.0871	.0921	.0972	.1024	.1078	.1133	40'
22'	.0686	.0731	.0777	.0824	.0873	.0923	.0974	.1026	.1080	.1134	38'
24'	.0687	.0732	.0778	.0826	.0874	.0924	.0976	.1028	.1082	.1136	36'
26'	.0689	.0734	.0780	.0827	.0876	.0926	.0977	.1030	.1083	.1138	34'
28'	.0690	.0735	.0781	.0829	.0878	.0928	.0979	.1031	.1085	.1140	32'
30'	.0692	.0737	.0783	.0831	.0879	.0929	.0981	.1033	.1087	.1142	30'
32'	.0693	.0738	.0785	.0832	.0881	.0931	.0982	.1035	.1089	.1144	28'
34'	.0695	.0740	.0786	.0834	.0883	.0933	.0984	.1037	.1091	.1146	26'
36'	.0696	.0741	.0788	.0835	.0884	.0934	.0986	.1039	.1092	.1147	24'
38'	.0698	.0743	.0789	.0837	.0886	.0936	.0988	.1040	.1094	.1149	22'
40'	.0699	.0744	.0791	.0839	.0888	.0938	.0989	.1042	.1096	.1151	20'
42'	.0701	.0746	.0792	.0840	.0889	.0940	.0991	.1044	.1098	.1153	18'
44'	.0702	.0747	.0794	.0842	.0891	.0941	.0993	.1046	.1100	.1155	16'
46'	.0704	.0749	.0796	.0843	.0893	.0943	.0995	.1047	.1101	.1157	14'
48'	.0705	.0751	.0797	.0845	.0894	.0945	.0996	.1049	.1103	.1159	12'
50'	.0707	.0752	.0799	.0847	.0896	.0946	.0998	.1051	.1105	.1160	10'
52'	.0708	.0754	.0800	.0848	.0898	.0948	.1000	.1053	.1107	.1162	8'
54'	.0710	.0755	.0802	.0850	.0899	.0950	.1002	.1055	.1109	.1164	6'
56'	.0711	.0757	.0803	.0852	.0901	.0951	.1003	.1056	.1111	.1166	4'
58'	.0713	.0758	.0805	.0853	.0903	.0953	.1005	.1058	.1112	.1168	2'
60'	.0714	.0760	.0807	.0855	.0904	.0955	.1007	.1060	.1114	.1170	0'
	329°	328°	327°	326°	325°	324°	323°	322°	321°	320°	

	40°	41°	42°	43°	44°	45°	46°	47°	48°	49°	
0'	.1170	.1226	.1284	.1343	.1403	.1464	.1527	.1590	.1654	.1720	60'
2'	.1172	.1228	.1286	.1345	.1405	.1467	.1529	.1592	.1657	.1722	58'
4'	.1174	.1230	.1288	.1347	.1407	.1469	.1531	.1594	.1659	.1724	56'
6'	.1175	.1232	.1290	.1349	.1409	.1471	.1533	.1596	.1661	.1726	54'
8'	.1177	.1234	.1292	.1351	.1411	.1473	.1535	.1599	.1663	.1728	52'
10'	.1179	.1236	.1294	.1353	.1413	.1475	.1537	.1601	.1665	.1731	50'
12'	.1181	.1238	.1296	.1355	.1415	.1477	.1539	.1603	.1667	.1733	48'
14'	.1183	.1240	.1298	.1357	.1417	.1479	.1541	.1605	.1670	.1735	46'
16'	.1185	.1242	.1300	.1359	.1420	.1481	.1543	.1607	.1672	.1737	44'
18'	.1187	.1244	.1302	.1361	.1422	.1483	.1546	.1609	.1674	.1740	42'
20'	.1189	.1246	.1304	.1363	.1424	.1485	.1548	.1611	.1676	.1742	40'
22'	.1190	.1248	.1306	.1365	.1426	.1487	.1550	.1613	.1678	.1744	38'
24'	.1192	.1249	.1308	.1367	.1428	.1489	.1552	.1616	.1680	.1746	36'
26'	.1194	.1251	.1310	.1369	.1430	.1491	.1554	.1618	.1683	.1748	34'
28'	.1196	.1253	.1312	.1371	.1432	.1493	.1556	.1620	.1685	.1751	32'
30'	.1198	.1255	.1314	.1373	.1434	.1495	.1558	.1622	.1687	.1753	30'
32'	.1200	.1257	.1316	.1375	.1436	.1498	.1560	.1624	.1689	.1755	28'
34'	.1202	.1259	.1318	.1377	.1438	.1500	.1562	.1626	.1691	.1757	26'
36'	.1204	.1261	.1320	.1379	.1440	.1502	.1565	.1628	.1693	.1759	24'
38'	.1206	.1263	.1321	.1381	.1442	.1504	.1567	.1631	.1696	.1762	22'
40'	.1207	.1265	.1323	.1383	.1444	.1506	.1569	.1633	.1698	.1764	20'
42'	.1209	.1267	.1325	.1385	.1446	.1508	.1571	.1635	.1700	.1766	18'
44'	.1211	.1269	.1327	.1387	.1448	.1510	.1573	.1637	.1702	.1768	16'
46'	.1213	.1271	.1329	.1389	.1450	.1512	.1575	.1639	.1704	.1770	14'
48'	.1215	.1273	.1331	.1391	.1452	.1514	.1577	.1641	.1707	.1773	12'
50'	.1217	.1275	.1333	.1393	.1454	.1516	.1579	.1644	.1709	.1775	10'
52'	.1219	.1277	.1335	.1395	.1456	.1518	.1582	.1646	.1711	.1777	8'
54'	.1221	.1278	.1337	.1397	.1458	.1520	.1584	.1648	.1713	.1779	6'
56'	.1223	.1280	.1339	.1399	.1460	.1523	.1586	.1650	.1715	.1782	4'
58'	.1225	.1282	.1341	.1401	.1462	.1525	.1588	.1652	.1718	.1784	2'
60'	.1226	.1284	.1343	.1403	.1464	.1527	.1590	.1654	.1720	.1786	0'
	319°	318°	317°	316°	315°	314°	313°	312°	311°	310°	

	50°	51°	52°	53°	54°	55°	56°	57°	58°	59°	
0'	.1786	.1853	.1922	.1991	.2061	.2132	.2204	.2277	.2350	.2425	60'
2'	.1788	.1856	.1924	.1993	.2063	.2135	.2206	.2279	.2353	.2427	58'
4'	.1791	.1858	.1926	.1996	.2066	.2137	.2209	.2282	.2355	.2430	56'
6'	.1793	.1860	.1929	.1998	.2068	.2139	.2211	.2284	.2358	.2432	54'
8'	.1795	.1862	.1931	.2000	.2070	.2142	.2214	.2287	.2360	.2435	52'
10'	.1797	.1865	.1933	.2003	.2073	.2144	.2216	.2289	.2363	.2437	50'
12'	.1799	.1867	.1935	.2005	.2075	.2146	.2219	.2291	.2365	.2440	48'
14'	.1802	.1869	.1938	.2007	.2078	.2149	.2221	.2294	.2368	.2442	46'
16'	.1804	.1872	.1940	.2010	.2080	.2151	.2223	.2296	.2370	.2445	44'
18'	.1806	.1874	.1942	.2012	.2082	.2154	.2226	.2299	.2373	.2447	42'
20'	.1808	.1876	.1945	.2014	.2085	.2156	.2228	.2301	.2375	.2450	40'
22'	.1811	.1878	.1947	.2017	.2087	.2158	.2231	.2304	.2378	.2452	38'
24'	.1813	.1881	.1949	.2019	.2089	.2161	.2233	.2306	.2380	.2455	36'
26'	.1815	.1883	.1952	.2021	.2092	.2163	.2235	.2309	.2383	.2457	34'
28'	.1817	.1885	.1954	.2024	.2094	.2166	.2238	.2311	.2385	.2460	32'
30'	.1820	.1887	.1956	.2026	.2096	.2168	.2240	.2314	.2388	.2462	30'
32'	.1822	.1890	.1959	.2028	.2099	.2170	.2243	.2316	.2390	.2465	28'
34'	.1824	.1892	.1961	.2031	.2101	.2173	.2245	.2318	.2392	.2467	26'
36'	.1826	.1894	.1963	.2033	.2104	.2175	.2248	.2321	.2395	.2470	24'
38'	.1829	.1897	.1965	.2035	.2106	.2178	.2250	.2323	.2397	.2472	22'
40'	.1831	.1899	.1968	.2038	.2108	.2180	.2252	.2326	.2400	.2475	20'
42'	.1833	.1901	.1970	.2040	.2111	.2182	.2255	.2328	.2402	.2477	18'
44'	.1835	.1903	.1972	.2042	.2113	.2185	.2257	.2331	.2405	.2480	16'
46'	.1838	.1906	.1975	.2045	.2115	.2187	.2260	.2333	.2407	.2482	14'
48'	.1840	.1908	.1977	.2047	.2118	.2190	.2262	.2336	.2410	.2485	12'
50'	.1842	.1910	.1979	.2049	.2120	.2192	.2265	.2338	.2412	.2487	10'
52'	.1844	.1913	.1982	.2052	.2123	.2194	.2267	.2341	.2415	.2490	8'
54'	.1847	.1915	.1984	.2054	.2125	.2197	.2269	.2343	.2417	.2492	6'
56'	.1849	.1917	.1986	.2056	.2127	.2199	.2272	.2345	.2420	.2495	4'
58'	.1851	.1919	.1989	.2059	.2130	.2202	.2274	.2348	.2422	.2497	2'
60'	.1853	.1922	.1991	.2061	.2132	.2204	.2277	.2350	.2425	.2500	0'
	309°	308°	307°	306°	305°	304°	303°	302°	301°	300°	

	60°	61°	62°	63°	64°	65°	66°	67°	68°	69°	
0'	.2500	.2576	.2653	.2730	.2808	.2887	.2966	.3046	.3127	.3208	60'
2'	.2503	.2578	.2655	.2733	.2811	.2890	.2969	.3049	.3130	.3211	58'
4'	.2505	.2581	.2658	.2735	.2813	.2892	.2972	.3052	.3132	.3214	56'
6'	.2508	.2584	.2660	.2738	.2816	.2895	.2974	.3054	.3135	.3216	54'
8'	.2510	.2586	.2663	.2740	.2819	.2897	.2977	.3057	.3138	.3219	52'
10'	.2513	.2589	.2665	.2743	.2821	.2900	.2980	.3060	.3140	.3222	50'
12'	.2515	.2591	.2668	.2746	.2824	.2903	.2982	.3062	.3143	.3224	48'
14'	.2518	.2594	.2671	.2748	.2826	.2905	.2985	.3065	.3146	.3227	46'
16'	.2520	.2596	.2673	.2751	.2829	.2908	.2988	.3068	.3149	.3230	44'
18'	.2523	.2599	.2676	.2753	.2832	.2911	.2990	.3070	.3151	.3233	42'
20'	.2525	.2601	.2678	.2756	.2834	.2913	.2993	.3073	.3154	.3235	40'
22'	.2528	.2604	.2681	.2759	.2837	.2916	.2996	.3076	.3157	.3238	38'
24'	.2530	.2607	.2684	.2761	.2840	.2919	.2998	.3079	.3159	.3241	36'
26'	.2533	.2609	.2686	.2764	.2842	.2921	.3001	.3081	.3162	.3244	34'
28'	.2535	.2612	.2689	.2766	.2845	.2924	.3004	.3084	.3165	.3246	32'
30'	.2538	.2614	.2691	.2769	.2847	.2927	.3006	.3087	.3167	.3249	30'
32'	.2540	.2617	.2694	.2772	.2850	.2929	.3009	.3089	.3170	.3252	28'
34'	.2543	.2619	.2696	.2774	.2853	.2932	.3012	.3092	.3173	.3254	26'
36'	.2545	.2622	.2699	.2777	.2855	.2934	.3014	.3095	.3176	.3257	24'
38'	.2548	.2624	.2702	.2779	.2858	.2937	.3017	.3097	.3178	.3260	22'
40'	.2551	.2627	.2704	.2782	.2861	.2940	.3020	.3100	.3181	.3263	20'
42'	.2553	.2630	.2707	.2785	.2863	.2942	.3022	.3103	.3184	.3265	18'
44'	.2556	.2632	.2709	.2787	.2866	.2945	.3025	.3105	.3186	.3268	16'
46'	.2558	.2635	.2712	.2790	.2868	.2948	.3028	.3108	.3189	.3271	14'
48'	.2561	.2637	.2715	.2792	.2871	.2950	.3030	.3111	.3192	.3274	12'
50'	.2563	.2640	.2717	.2795	.2874	.2953	.3033	.3113	.3195	.3276	10'
52'	.2566	.2642	.2720	.2798	.2876	.2956	.3036	.3116	.3197	.3279	8'
54'	.2568	.2645	.2722	.2800	.2879	.2958	.3038	.3119	.3200	.3282	6'
56'	.2571	.2648	.2725	.2803	.2882	.2961	.3041	.3122	.3203	.3284	4'
58'	.2573	.2650	.2727	.2806	.2884	.2964	.3044	.3124	.3205	.3287	2'
60'	.2576	.2653	.2730	.2808	.2887	.2966	.3046	.3127	.3208	.3290	0'
	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	

	70°	71°	72°	73°	74°	75°	76°	77°	78°	79°	
0'	.3290	.3372	.3455	.3538	.3622	.3706	.3790	.3875	.3960	.4046	60'
2'	.3293	.3375	.3458	.3541	.3625	.3709	.3793	.3878	.3963	.4049	58'
4'	.3295	.3378	.3460	.3544	.3627	.3712	.3796	.3881	.3966	.4052	56'
6'	.3298	.3380	.3463	.3546	.3630	.3714	.3799	.3884	.3969	.4055	54'
8'	.3301	.3383	.3466	.3549	.3633	.3717	.3802	.3887	.3972	.4057	52'
10'	.3304	.3386	.3469	.3552	.3636	.3720	.3805	.3889	.3975	.4060	50'
12'	.3306	.3389	.3472	.3555	.3639	.3723	.3807	.3892	.3978	.4063	48'
14'	.3309	.3391	.3474	.3558	.3641	.3726	.3810	.3895	.3980	.4066	46'
16'	.3312	.3394	.3477	.3560	.3644	.3728	.3813	.3898	.3983	.4069	44'
18'	.3315	.3397	.3480	.3563	.3647	.3731	.3816	.3901	.3986	.4072	42'
20'	.3317	.3400	.3483	.3566	.3650	.3734	.3819	.3904	.3989	.4075	40'
22'	.3320	.3402	.3485	.3569	.3653	.3737	.3821	.3906	.3992	.4077	38'
24'	.3323	.3405	.3488	.3572	.3655	.3740	.3824	.3909	.3995	.4080	36'
26'	.3325	.3408	.3491	.3574	.3658	.3742	.3827	.3912	.3997	.4083	34'
28'	.3328	.3411	.3494	.3577	.3661	.3745	.3830	.3915	.4000	.4086	32'
30'	.3331	.3413	.3496	.3580	.3664	.3748	.3833	.3918	.4003	.4089	30'
32'	.3334	.3416	.3499	.3583	.3667	.3751	.3836	.3921	.4006	.4092	28'
34'	.3336	.3419	.3502	.3586	.3669	.3754	.3838	.3923	.4009	.4095	26'
36'	.3339	.3422	.3505	.3588	.3672	.3757	.3841	.3926	.4012	.4097	24'
38'	.3342	.3425	.3508	.3591	.3675	.3759	.3844	.3929	.4015	.4100	22'
40'	.3345	.3427	.3510	.3594	.3678	.3762	.3847	.3932	.4017	.4103	20'
42'	.3347	.3430	.3513	.3597	.3681	.3765	.3850	.3935	.4020	.4106	18'
44'	.3350	.3433	.3516	.3599	.3683	.3768	.3853	.3938	.4023	.4109	16'
46'	.3353	.3436	.3519	.3602	.3686	.3771	.3855	.3941	.4026	.4112	14'
48'	.3356	.3438	.3521	.3605	.3689	.3773	.3858	.3943	.4029	.4115	12'
50'	.3358	.3441	.3524	.3608	.3692	.3776	.3861	.3946	.4032	.4117	10'
52'	.3361	.3444	.3527	.3611	.3695	.3779	.3864	.3949	.4035	.4120	8'
54'	.3364	.3447	.3530	.3613	.3697	.3782	.3867	.3952	.4037	.4123	6'
56'	.3367	.3449	.3533	.3616	.3700	.3785	.3870	.3955	.4040	.4126	4'
58'	.3369	.3452	.3535	.3619	.3703	.3788	.3872	.3958	.4043	.4129	2'
60'	.3372	.3455	.3538	.3622	.3706	.3790	.3875	.3960	.4046	.4132	0'
	289°	288°	287°	286°	285°	284°	283°	282°	281°	280°	

	80°	81°	82°	83°	84°	85°	86°	87°	88°	89°	
0'	.4132	.4218	.4304	.4391	.4477	.4564	.4651	.4738	.4826	.4913	60'
2'	.4135	.4221	.4307	.4394	.4480	.4567	.4654	.4741	.4828	.4916	58'
4'	.4137	.4224	.4310	.4396	.4483	.4570	.4657	.4744	.4831	.4919	56'
6'	.4140	.4226	.4313	.4399	.4486	.4573	.4660	.4747	.4834	.4921	54'
8'	.4143	.4229	.4316	.4402	.4489	.4576	.4663	.4750	.4837	.4924	52'
10'	.4146	.4232	.4319	.4405	.4492	.4579	.4666	.4753	.4840	.4927	50'
12'	.4149	.4235	.4321	.4408	.4495	.4582	.4669	.4756	.4843	.4930	48'
14'	.4152	.4238	.4324	.4411	.4498	.4585	.4672	.4759	.4846	.4933	46'
16'	.4155	.4241	.4327	.4414	.4501	.4587	.4674	.4762	.4849	.4936	44'
18'	.4158	.4244	.4330	.4417	.4503	.4590	.4677	.4764	.4852	.4939	42'
20'	.4160	.4247	.4333	.4420	.4506	.4593	.4680	.4767	.4855	.4942	40'
22'	.4163	.4249	.4336	.4422	.4509	.4596	.4683	.4770	.4857	.4945	38'
24'	.4166	.4252	.4339	.4425	.4512	.4599	.4686	.4773	.4860	.4948	36'
26'	.4169	.4255	.4342	.4428	.4515	.4602	.4689	.4776	.4863	.4951	34'
28'	.4172	.4258	.4344	.4431	.4518	.4605	.4692	.4779	.4866	.4953	32'
30'	.4175	.4261	.4347	.4434	.4521	.4608	.4695	.4782	.4869	.4956	30'
32'	.4178	.4264	.4350	.4437	.4524	.4611	.4698	.4785	.4872	.4959	28'
34'	.4181	.4267	.4353	.4440	.4527	.4614	.4701	.4788	.4875	.4962	26'
36'	.4183	.4270	.4356	.4443	.4529	.4616	.4703	.4791	.4878	.4965	24'
38'	.4186	.4272	.4359	.4446	.4532	.4619	.4706	.4794	.4881	.4968	22'
40'	.4189	.4275	.4362	.4448	.4535	.4622	.4709	.4796	.4884	.4971	20'
42'	.4192	.4278	.4365	.4451	.4538	.4625	.4712	.4799	.4887	.4974	18'
44'	.4195	.4281	.4368	.4454	.4541	.4628	.4715	.4802	.4889	.4977	16'
46'	.4198	.4284	.4370	.4457	.4544	.4631	.4718	.4805	.4892	.4980	14'
48'	.4201	.4287	.4373	.4460	.4547	.4634	.4721	.4808	.4895	.4983	12'
50'	.4203	.4290	.4376	.4463	.4550	.4637	.4724	.4811	.4898	.4985	10'
52'	.4206	.4293	.4379	.4466	.4553	.4640	.4727	.4814	.4901	.4988	8'
54'	.4209	.4295	.4382	.4469	.4556	.4643	.4730	.4817	.4904	.4991	6'
56'	.4212	.4298	.4385	.4472	.4558	.4645	.4733	.4820	.4907	.4994	4'
58'	.4215	.4301	.4388	.4474	.4561	.4648	.4735	.4823	.4910	.4997	2'
60'	.4218	.4304	.4391	.4477	.4564	.4651	.4738	.4826	.4913	.5000	0'
	279°	278°	277°	276°	275°	274°	273°	272°	271°	270°	

	90°	91°	92°	93°	94°	95°	96°	97°	98°	99°	
0'	.5000	.5087	.5174	.5262	.5349	.5436	.5523	.5609	.5696	.5782	60'
2'	.5003	.5090	.5177	.5265	.5352	.5439	.5526	.5612	.5699	.5785	58'
4'	.5006	.5093	.5180	.5267	.5355	.5442	.5528	.5615	.5702	.5788	56'
6'	.5009	.5096	.5183	.5270	.5357	.5444	.5531	.5618	.5705	.5791	54'
8'	.5012	.5099	.5186	.5273	.5360	.5447	.5534	.5621	.5707	.5794	52'
10'	.5015	.5102	.5189	.5276	.5363	.5450	.5537	.5624	.5710	.5797	50'
12'	.5017	.5105	.5192	.5279	.5366	.5453	.5540	.5627	.5713	.5799	48'
14'	.5020	.5108	.5195	.5282	.5369	.5456	.5543	.5630	.5716	.5802	46'
16'	.5023	.5111	.5198	.5285	.5372	.5459	.5546	.5632	.5719	.5805	44'
18'	.5026	.5113	.5201	.5288	.5375	.5462	.5549	.5635	.5722	.5808	42'
20'	.5029	.5116	.5204	.5291	.5378	.5465	.5552	.5638	.5725	.5811	40'
22'	.5032	.5119	.5206	.5294	.5381	.5468	.5554	.5641	.5728	.5814	38'
24'	.5035	.5122	.5209	.5297	.5384	.5471	.5557	.5644	.5730	.5817	36'
26'	.5038	.5125	.5212	.5299	.5386	.5473	.5560	.5647	.5733	.5819	34'
28'	.5041	.5128	.5215	.5302	.5389	.5476	.5563	.5650	.5736	.5822	32'
30'	.5044	.5131	.5218	.5305	.5392	.5479	.5566	.5653	.5739	.5825	30'
32'	.5047	.5134	.5221	.5308	.5395	.5482	.5569	.5656	.5742	.5828	28'
34'	.5049	.5137	.5224	.5311	.5398	.5485	.5572	.5658	.5745	.5831	26'
36'	.5052	.5140	.5227	.5314	.5401	.5488	.5575	.5661	.5748	.5834	24'
38'	.5055	.5143	.5230	.5317	.5404	.5491	.5578	.5664	.5751	.5837	22'
40'	.5058	.5145	.5233	.5320	.5407	.5494	.5580	.5667	.5753	.5840	20'
42'	.5061	.5148	.5236	.5323	.5410	.5497	.5583	.5670	.5756	.5842	18'
44'	.5064	.5151	.5238	.5326	.5413	.5499	.5586	.5673	.5759	.5845	16'
46'	.5067	.5154	.5241	.5328	.5415	.5502	.5589	.5676	.5762	.5848	14'
48'	.5070	.5157	.5244	.5331	.5418	.5505	.5592	.5679	.5765	.5851	12'
50'	.5073	.5160	.5247	.5334	.5421	.5508	.5595	.5681	.5768	.5854	10'
52'	.5076	.5163	.5250	.5337	.5424	.5511	.5598	.5684	.5771	.5857	8'
54'	.5079	.5166	.5253	.5340	.5427	.5514	.5601	.5687	.5774	.5860	6'
56'	.5081	.5169	.5256	.5343	.5430	.5517	.5604	.5690	.5776	.5863	4'
58'	.5084	.5172	.5259	.5346	.5433	.5520	.5606	.5693	.5779	.5865	2'
60'	.5087	.5174	.5262	.5349	.5436	.5523	.5609	.5696	.5782	.5868	0'
	269°	268°	267°	266°	265°	264°	263°	262°	261°	260°	

	100°	101°	102°	103°	104°	105°	106°	107°	108°	109°	
0'	.5868	.5954	.6040	.6125	.6210	.6294	.6378	.6462	.6545	.6628	60'
2'	.5871	.5957	.6042	.6128	.6212	.6297	.6381	.6465	.6548	.6631	58'
4'	.5874	.5960	.6045	.6130	.6215	.6300	.6384	.6467	.6551	.6633	56'
6'	.5877	.5963	.6048	.6133	.6218	.6303	.6387	.6470	.6553	.6636	54'
8'	.5880	.5965	.6051	.6136	.6221	.6305	.6389	.6473	.6556	.6639	52'
10'	.5883	.5968	.6054	.6139	.6224	.6308	.6392	.6476	.6559	.6642	50'
12'	.5885	.5971	.6057	.6142	.6227	.6311	.6395	.6479	.6562	.6644	48'
14'	.5888	.5974	.6059	.6145	.6229	.6314	.6398	.6481	.6564	.6647	46'
16'	.5891	.5977	.6062	.6147	.6232	.6317	.6401	.6484	.6567	.6650	44'
18'	.5894	.5980	.6065	.6150	.6235	.6319	.6403	.6487	.6570	.6653	42'
20'	.5897	.5983	.6068	.6153	.6238	.6322	.6406	.6490	.6573	.6655	40'
22'	.5900	.5985	.6071	.6156	.6241	.6325	.6409	.6492	.6575	.6658	38'
24'	.5903	.5988	.6074	.6159	.6243	.6328	.6412	.6495	.6578	.6661	36'
26'	.5905	.5991	.6077	.6162	.6246	.6331	.6414	.6498	.6581	.6664	34'
28'	.5908	.5994	.6079	.6164	.6249	.6333	.6417	.6501	.6584	.6666	32'
30'	.5911	.5997	.6082	.6167	.6252	.6336	.6420	.6504	.6587	.6669	30'
32'	.5914	.6000	.6085	.6170	.6255	.6339	.6423	.6506	.6589	.6672	28'
34'	.5917	.6003	.6088	.6173	.6258	.6342	.6426	.6509	.6592	.6675	26'
36'	.5920	.6005	.6091	.6176	.6260	.6345	.6428	.6512	.6595	.6677	24'
38'	.5923	.6008	.6094	.6179	.6263	.6347	.6431	.6515	.6598	.6680	22'
40'	.5925	.6011	.6096	.6181	.6266	.6350	.6434	.6517	.6600	.6683	20'
42'	.5928	.6014	.6099	.6184	.6269	.6353	.6437	.6520	.6603	.6685	18'
44'	.5931	.6017	.6102	.6187	.6272	.6356	.6440	.6523	.6606	.6688	16'
46'	.5934	.6020	.6105	.6190	.6274	.6359	.6442	.6526	.6609	.6691	14'
48'	.5937	.6022	.6108	.6193	.6277	.6361	.6445	.6528	.6611	.6694	12'
50'	.5940	.6025	.6111	.6195	.6280	.6364	.6448	.6531	.6614	.6696	10'
52'	.5943	.6028	.6113	.6198	.6283	.6367	.6451	.6534	.6617	.6699	8'
54'	.5945	.6031	.6116	.6201	.6286	.6370	.6454	.6537	.6620	.6702	6'
56'	.5948	.6034	.6119	.6204	.6288	.6373	.6456	.6540	.6622	.6705	4'
58'	.5951	.6037	.6122	.6207	.6291	.6375	.6459	.6542	.6625	.6707	2'
60'	.5954	.6040	.6125	.6210	.6294	.6378	.6462	.6545	.6628	.6710	0'
	259°	258°	257°	256°	255°	254°	253°	252°	251°	250°	

	110°	111°	112°	113°	114°	115°	116°	117°	118°	119°	
0'	.6710	.6792	.6873	.6954	.7034	.7113	.7192	.7270	.7347	.7424	60'
2'	.6713	.6795	.6876	.6956	.7036	.7116	.7194	.7273	.7350	.7427	58'
4'	.6716	.6797	.6878	.6959	.7039	.7118	.7197	.7275	.7352	.7429	56'
6'	.6718	.6800	.6881	.6962	.7042	.7121	.7200	.7278	.7355	.7432	54'
8'	.6721	.6803	.6884	.6964	.7044	.7124	.7202	.7280	.7358	.7434	52'
10'	.6724	.6805	.6887	.6967	.7047	.7126	.7205	.7283	.7360	.7437	50'
12'	.6726	.6808	.6889	.6970	.7050	.7129	.7208	.7285	.7363	.7439	48'
14'	.6729	.6811	.6892	.6972	.7052	.7132	.7210	.7288	.7365	.7442	46'
16'	.6732	.6814	.6895	.6975	.7055	.7134	.7213	.7291	.7368	.7444	44'
18'	.6735	.6816	.6897	.6978	.7058	.7137	.7215	.7293	.7370	.7447	42'
20'	.6737	.6819	.6900	.6980	.7060	.7139	.7218	.7296	.7373	.7449	40'
22'	.6740	.6822	.6903	.6983	.7063	.7142	.7221	.7298	.7376	.7452	38'
24'	.6743	.6824	.6905	.6986	.7066	.7145	.7223	.7301	.7378	.7455	36'
26'	.6746	.6827	.6908	.6988	.7068	.7147	.7226	.7304	.7381	.7457	34'
28'	.6748	.6830	.6911	.6991	.7071	.7150	.7228	.7306	.7383	.7460	32'
30'	.6751	.6833	.6913	.6994	.7073	.7153	.7231	.7309	.7386	.7462	30'
32'	.6754	.6835	.6916	.6996	.7076	.7155	.7234	.7311	.7388	.7465	28'
34'	.6756	.6838	.6919	.6999	.7079	.7158	.7236	.7314	.7391	.7467	26'
36'	.6759	.6841	.6921	.7002	.7081	.7160	.7239	.7316	.7393	.7470	24'
38'	.6762	.6843	.6924	.7004	.7084	.7163	.7241	.7319	.7396	.7472	22'
40'	.6765	.6846	.6927	.7007	.7087	.7166	.7244	.7322	.7399	.7475	20'
42'	.6767	.6849	.6930	.7010	.7089	.7168	.7247	.7324	.7401	.7477	18'
44'	.6770	.6851	.6932	.7012	.7092	.7171	.7249	.7327	.7404	.7480	16'
46'	.6773	.6854	.6935	.7015	.7095	.7174	.7252	.7329	.7406	.7482	14'
48'	.6776	.6857	.6938	.7018	.7097	.7176	.7254	.7332	.7409	.7485	12'
50'	.6778	.6860	.6940	.7020	.7100	.7179	.7257	.7335	.7411	.7487	10'
52'	.6781	.6862	.6943	.7023	.7103	.7181	.7260	.7337	.7414	.7490	8'
54'	.6784	.6865	.6946	.7026	.7105	.7184	.7262	.7340	.7416	.7492	6'
56'	.6786	.6868	.6948	.7028	.7108	.7187	.7265	.7342	.7419	.7495	4'
58'	.6789	.6870	.6951	.7031	.7110	.7189	.7267	.7345	.7422	.7497	2'
60'	.6792	.6873	.6954	.7034	.7113	.7192	.7270	.7347	.7424	.7500	0'
	249°	248°	247°	246°	245°	244°	243°	242°	241°	240°	

	120°	121°	122°	123°	124°	125°	126°	127°	128°	129°	
0'	.7500	.7575	.7650	.7723	.7796	.7868	.7939	.8009	.8078	.8147	60'
2'	.7503	.7578	.7652	.7726	.7798	.7870	.7941	.8011	.8081	.8149	58'
4'	.7505	.7580	.7655	.7728	.7801	.7873	.7944	.8014	.8083	.8151	56'
6'	.7508	.7583	.7657	.7731	.7803	.7875	.7946	.8016	.8085	.8153	54'
8'	.7510	.7585	.7659	.7733	.7806	.7877	.7948	.8018	.8087	.8156	52'
10'	.7513	.7588	.7662	.7735	.7808	.7880	.7951	.8021	.8090	.8158	50'
12'	.7515	.7590	.7664	.7738	.7810	.7882	.7953	.8023	.8092	.8160	48'
14'	.7518	.7593	.7667	.7740	.7813	.7885	.7955	.8025	.8094	.8162	46'
16'	.7520	.7595	.7669	.7743	.7815	.7887	.7958	.8028	.8097	.8165	44'
18'	.7523	.7598	.7672	.7745	.7818	.7889	.7960	.8030	.8099	.8167	42'
20'	.7525	.7600	.7674	.7748	.7820	.7892	.7962	.8032	.8101	.8169	40'
22'	.7528	.7603	.7677	.7750	.7822	.7894	.7965	.8035	.8103	.8171	38'
24'	.7530	.7605	.7679	.7752	.7825	.7896	.7967	.8037	.8106	.8174	36'
26'	.7533	.7608	.7682	.7755	.7827	.7899	.7969	.8039	.8108	.8176	34'
28'	.7535	.7610	.7684	.7757	.7830	.7901	.7972	.8041	.8110	.8178	32'
30'	.7538	.7612	.7686	.7760	.7832	.7904	.7974	.8044	.8113	.8180	30'
32'	.7540	.7615	.7689	.7762	.7834	.7906	.7976	.8046	.8115	.8183	28'
34'	.7543	.7617	.7691	.7765	.7837	.7908	.7979	.8048	.8117	.8185	26'
36'	.7545	.7620	.7694	.7767	.7839	.7911	.7981	.8051	.8119	.8187	24'
38'	.7548	.7622	.7696	.7769	.7842	.7913	.7983	.8053	.8122	.8189	22'
40'	.7550	.7625	.7699	.7772	.7844	.7915	.7986	.8055	.8124	.8192	20'
42'	.7553	.7627	.7701	.7774	.7846	.7918	.7988	.8058	.8126	.8194	18'
44'	.7555	.7630	.7704	.7777	.7849	.7920	.7990	.8060	.8128	.8196	16'
46'	.7558	.7632	.7706	.7779	.7851	.7922	.7993	.8062	.8131	.8198	14'
48'	.7560	.7635	.7709	.7781	.7854	.7925	.7995	.8065	.8133	.8201	12'
50'	.7563	.7637	.7711	.7784	.7856	.7927	.7997	.8067	.8135	.8203	10'
52'	.7565	.7640	.7713	.7786	.7858	.7930	.8000	.8069	.8138	.8205	8'
54'	.7568	.7642	.7716	.7789	.7861	.7932	.8002	.8071	.8140	.8207	6'
56'	.7570	.7645	.7718	.7791	.7863	.7934	.8004	.8074	.8142	.8209	4'
58'	.7573	.7647	.7721	.7794	.7865	.7937	.8007	.8076	.8144	.8212	2'
60'	.7575	.7650	.7723	.7796	.7868	.7939	.8009	.8078	.8147	.8214	0'
	239°	238°	237°	236°	235°	234°	233°	232°	231°	230°	

	130°	131°	132°	133°	134°	135°	136°	137°	138°	139°	
0'	.8214	.8280	.8346	.8410	.8473	.8536	.8597	.8657	.8716	.8774	60'
2'	.8216	.8282	.8348	.8412	.8475	.8538	.8599	.8659	.8718	.8775	58'
4'	.8218	.8285	.8350	.8414	.8477	.8540	.8601	.8661	.8720	.8777	56'
6'	.8221	.8287	.8352	.8416	.8480	.8542	.8603	.8663	.8722	.8779	54'
8'	.8223	.8289	.8354	.8418	.8482	.8544	.8605	.8665	.8723	.8781	52'
10'	.8225	.8291	.8356	.8421	.8484	.8546	.8607	.8667	.8725	.8783	50'
12'	.8227	.8293	.8359	.8423	.8486	.8548	.8609	.8669	.8727	.8785	48'
14'	.8230	.8296	.8361	.8425	.8488	.8550	.8611	.8671	.8729	.8787	46'
16'	.8232	.8298	.8363	.8427	.8490	.8552	.8613	.8673	.8731	.8789	44'
18'	.8234	.8300	.8365	.8429	.8492	.8554	.8615	.8675	.8733	.8791	42'
20'	.8236	.8302	.8367	.8431	.8494	.8556	.8617	.8677	.8735	.8793	40'
22'	.8238	.8304	.8369	.8433	.8496	.8558	.8619	.8679	.8737	.8794	38'
24'	.8241	.8307	.8372	.8435	.8498	.8560	.8621	.8680	.8739	.8796	36'
26'	.8243	.8309	.8374	.8438	.8500	.8562	.8623	.8682	.8741	.8798	34'
28'	.8245	.8311	.8376	.8440	.8502	.8564	.8625	.8684	.8743	.8800	32'
30'	.8247	.8313	.8378	.8442	.8505	.8566	.8627	.8686	.8745	.8802	30'
32'	.8249	.8315	.8380	.8444	.8507	.8568	.8629	.8688	.8747	.8804	28'
34'	.8252	.8317	.8382	.8446	.8509	.8570	.8631	.8690	.8749	.8806	26'
36'	.8254	.8320	.8384	.8448	.8511	.8572	.8633	.8692	.8751	.8808	24'
38'	.8256	.8322	.8387	.8450	.8513	.8574	.8635	.8694	.8752	.8810	22'
40'	.8258	.8324	.8389	.8452	.8515	.8576	.8637	.8696	.8754	.8811	20'
42'	.8260	.8326	.8391	.8454	.8517	.8578	.8639	.8698	.8756	.8813	18'
44'	.8263	.8328	.8393	.8457	.8519	.8580	.8641	.8700	.8758	.8815	16'
46'	.8265	.8330	.8395	.8459	.8521	.8583	.8643	.8702	.8760	.8817	14'
48'	.8267	.8333	.8397	.8461	.8523	.8585	.8645	.8704	.8762	.8819	12'
50'	.8269	.8335	.8399	.8463	.8525	.8587	.8647	.8706	.8764	.8821	10'
52'	.8272	.8337	.8401	.8465	.8527	.8589	.8649	.8708	.8766	.8823	8'
54'	.8274	.8339	.8404	.8467	.8529	.8591	.8651	.8710	.8768	.8825	6'
56'	.8276	.8341	.8406	.8469	.8531	.8593	.8653	.8712	.8770	.8826	4'
58'	.8278	.8343	.8408	.8471	.8533	.8595	.8655	.8714	.8772	.8828	2'
60'	.8280	.8346	.8410	.8473	.8536	.8597	.8657	.8716	.8774	.8830	0'
	229°	228°	227°	226°	225°	224°	223°	222°	221°	220°	

	140°	141°	142°	143°	144°	145°	146°	147°	148°	149°	
0'	.8830	.8886	.8940	.8993	.9045	.9096	.9145	.9193	.9240	.9286	60'
2'	.8832	.8888	.8942	.8995	.9047	.9097	.9147	.9195	.9242	.9287	58'
4'	.8834	.8889	.8944	.8997	.9049	.9099	.9148	.9197	.9243	.9289	56'
6'	.8836	.8891	.8945	.8998	.9050	.9101	.9150	.9198	.9245	.9290	54'
8'	.8838	.8893	.8947	.9000	.9052	.9102	.9152	.9200	.9246	.9292	52'
10'	.8840	.8895	.8949	.9002	.9054	.9104	.9153	.9201	.9248	.9293	50'
12'	.8841	.8897	.8951	.9004	.9055	.9106	.9155	.9203	.9249	.9295	48'
14'	.8843	.8899	.8953	.9005	.9057	.9107	.9157	.9204	.9251	.9296	46'
16'	.8845	.8900	.8954	.9007	.9059	.9109	.9158	.9206	.9253	.9298	44'
18'	.8847	.8902	.8956	.9009	.9060	.9111	.9160	.9208	.9254	.9299	42'
20'	.8849	.8904	.8958	.9011	.9062	.9112	.9161	.9209	.9256	.9301	40'
22'	.8851	.8906	.8960	.9012	.9064	.9114	.9163	.9211	.9257	.9302	38'
24'	.8853	.8908	.8961	.9014	.9066	.9116	.9165	.9212	.9259	.9304	36'
26'	.8854	.8909	.8963	.9016	.9067	.9117	.9166	.9214	.9260	.9305	34'
28'	.8856	.8911	.8965	.9018	.9069	.9119	.9168	.9215	.9262	.9307	32'
30'	.8858	.8913	.8967	.9019	.9071	.9121	.9169	.9217	.9263	.9308	30'
32'	.8860	.8915	.8969	.9021	.9072	.9122	.9171	.9219	.9265	.9310	28'
34'	.8862	.8917	.8970	.9023	.9074	.9124	.9173	.9220	.9266	.9311	26'
36'	.8864	.8918	.8972	.9024	.9076	.9126	.9174	.9222	.9268	.9313	24'
38'	.8866	.8920	.8974	.9026	.9077	.9127	.9176	.9223	.9269	.9314	22'
40'	.8867	.8922	.8976	.9028	.9079	.9129	.9177	.9225	.9271	.9316	20'
42'	.8869	.8924	.8977	.9030	.9081	.9130	.9179	.9226	.9272	.9317	18'
44'	.8871	.8926	.8979	.9031	.9082	.9132	.9181	.9228	.9274	.9318	16'
46'	.8873	.8927	.8981	.9033	.9084	.9134	.9182	.9229	.9275	.9320	14'
48'	.8875	.8929	.8983	.9035	.9086	.9135	.9184	.9231	.9277	.9321	12'
50'	.8877	.8931	.8984	.9037	.9087	.9137	.9185	.9233	.9278	.9323	10'
52'	.8878	.8933	.8986	.9038	.9089	.9139	.9187	.9234	.9280	.9324	8'
54'	.8880	.8935	.8988	.9040	.9091	.9140	.9189	.9236	.9281	.9326	6'
56'	.8882	.8936	.8990	.9042	.9092	.9142	.9190	.9237	.9283	.9327	4'
58'	.8884	.8938	.8991	.9043	.9094	.9144	.9192	.9239	.9284	.9329	2'
60'	.8886	.8940	.8993	.9045	.9096	.9145	.9193	.9240	.9286	.9330	0'
	219°	218°	217°	216°	215°	214°	213°	212°	211°	210°	

	150°	151°	152°	153°	154°	155°	156°	157°	158°	159°	
0'	.9330	.9373	.9415	.9455	.9494	.9532	.9568	.9603	.9636	.9668	60'
2'	.9332	.9375	.9416	.9456	.9495	.9533	.9569	.9604	.9637	.9669	58'
4'	.9333	.9376	.9417	.9458	.9497	.9534	.9570	.9605	.9638	.9670	56'
6'	.9334	.9377	.9419	.9459	.9498	.9535	.9571	.9606	.9639	.9671	54'
8'	.9336	.9379	.9420	.9460	.9499	.9536	.9572	.9607	.9640	.9672	52'
10'	.9337	.9380	.9422	.9462	.9500	.9538	.9574	.9608	.9641	.9673	50'
12'	.9339	.9382	.9423	.9463	.9502	.9539	.9575	.9609	.9642	.9674	48'
14'	.9340	.9383	.9424	.9464	.9503	.9540	.9576	.9610	.9644	.9675	46'
16'	.9342	.9384	.9426	.9466	.9504	.9541	.9577	.9612	.9645	.9676	44'
18'	.9343	.9386	.9427	.9467	.9505	.9543	.9578	.9613	.9646	.9677	42'
20'	.9345	.9387	.9428	.9468	.9507	.9544	.9579	.9614	.9647	.9678	40'
22'	.9346	.9389	.9430	.9469	.9508	.9545	.9581	.9615	.9648	.9679	38'
24'	.9347	.9390	.9431	.9471	.9509	.9546	.9582	.9616	.9649	.9680	36'
26'	.9349	.9391	.9432	.9472	.9510	.9547	.9583	.9617	.9650	.9681	34'
28'	.9350	.9393	.9434	.9473	.9512	.9549	.9584	.9618	.9651	.9682	32'
30'	.9352	.9394	.9435	.9475	.9513	.9550	.9585	.9619	.9652	.9683	30'
32'	.9353	.9395	.9436	.9476	.9514	.9551	.9586	.9621	.9653	.9684	28'
34'	.9355	.9397	.9438	.9477	.9515	.9552	.9588	.9622	.9654	.9685	26'
36'	.9356	.9398	.9439	.9479	.9517	.9553	.9589	.9623	.9655	.9686	24'
38'	.9357	.9400	.9440	.9480	.9518	.9555	.9590	.9624	.9656	.9687	22'
40'	.9359	.9401	.9442	.9481	.9519	.9556	.9591	.9625	.9657	.9688	20'
42'	.9360	.9402	.9443	.9482	.9520	.9557	.9592	.9626	.9658	.9689	18'
44'	.9362	.9404	.9444	.9484	.9522	.9558	.9593	.9627	.9660	.9690	16'
46'	.9363	.9405	.9446	.9485	.9523	.9559	.9595	.9628	.9661	.9691	14'
48'	.9365	.9407	.9447	.9486	.9524	.9561	.9596	.9629	.9662	.9692	12'
50'	.9366	.9408	.9448	.9488	.9525	.9562	.9597	.9630	.9663	.9693	10'
52'	.9367	.9409	.9450	.9489	.9527	.9563	.9598	.9632	.9664	.9694	8'
54'	.9369	.9411	.9451	.9490	.9528	.9564	.9599	.9633	.9665	.9695	6'
56'	.9370	.9412	.9452	.9491	.9529	.9565	.9600	.9634	.9666	.9696	4'
58'	.9372	.9413	.9454	.9493	.9530	.9567	.9601	.9635	.9667	.9697	2'
60'	.9373	.9415	.9455	.9494	.9532	.9568	.9603	.9636	.9668	.9698	0'
	209°	208°	207°	206°	205°	204°	203°	202°	201°	200°	

	160°	161°	162°	163°	164°	165°	166°	167°	168°	169°	
0'	.9698	.9728	.9755	.9782	.9806	.9830	.9851	.9872	.9891	.9908	60'
2'	.9699	.9729	.9756	.9782	.9807	.9830	.9852	.9873	.9891	.9909	58'
4'	.9700	.9729	.9757	.9783	.9808	.9831	.9853	.9873	.9892	.9909	56'
6'	.9701	.9730	.9758	.9784	.9809	.9832	.9854	.9874	.9893	.9910	54'
8'	.9702	.9731	.9759	.9785	.9810	.9833	.9854	.9874	.9893	.9910	52'
10'	.9703	.9732	.9760	.9786	.9810	.9833	.9855	.9875	.9894	.9911	50'
12'	.9704	.9733	.9761	.9787	.9811	.9834	.9856	.9876	.9894	.9911	48'
14'	.9705	.9734	.9762	.9787	.9812	.9835	.9856	.9876	.9895	.9912	46'
16'	.9706	.9735	.9762	.9788	.9813	.9836	.9857	.9877	.9896	.9913	44'
18'	.9707	.9736	.9763	.9789	.9813	.9836	.9858	.9878	.9896	.9913	42'
20'	.9708	.9737	.9764	.9790	.9814	.9837	.9858	.9878	.9897	.9914	40'
22'	.9709	.9738	.9765	.9791	.9815	.9838	.9859	.9879	.9897	.9914	38'
24'	.9710	.9739	.9766	.9792	.9816	.9839	.9860	.9880	.9898	.9915	36'
26'	.9711	.9740	.9767	.9792	.9817	.9839	.9860	.9880	.9898	.9915	34'
28'	.9712	.9741	.9768	.9793	.9817	.9840	.9861	.9881	.9899	.9916	32'
30'	.9713	.9742	.9769	.9794	.9818	.9841	.9862	.9881	.9900	.9916	30'
32'	.9714	.9743	.9769	.9795	.9819	.9841	.9863	.9882	.9900	.9917	28'
34'	.9715	.9743	.9770	.9796	.9820	.9842	.9863	.9883	.9901	.9917	26'
36'	.9716	.9744	.9771	.9797	.9820	.9843	.9864	.9883	.9901	.9918	24'
38'	.9717	.9745	.9772	.9797	.9821	.9844	.9865	.9884	.9902	.9918	22'
40'	.9718	.9746	.9773	.9798	.9822	.9844	.9865	.9885	.9903	.9919	20'
42'	.9719	.9747	.9774	.9799	.9823	.9845	.9866	.9885	.9903	.9919	18'
44'	.9720	.9748	.9775	.9800	.9824	.9846	.9867	.9886	.9904	.9920	16'
46'	.9721	.9749	.9776	.9801	.9824	.9847	.9867	.9886	.9904	.9920	14'
48'	.9722	.9750	.9776	.9801	.9825	.9847	.9868	.9887	.9905	.9921	12'
50'	.9723	.9751	.9777	.9802	.9826	.9848	.9869	.9888	.9905	.9921	10'
52'	.9724	.9752	.9778	.9803	.9827	.9849	.9869	.9888	.9906	.9922	8'
54'	.9725	.9753	.9779	.9804	.9827	.9849	.9870	.9889	.9906	.9923	6'
56'	.9726	.9753	.9780	.9805	.9828	.9850	.9871	.9890	.9907	.9923	4'
58'	.9727	.9754	.9781	.9806	.9829	.9851	.9871	.9890	.9908	.9924	2'
60'	.9728	.9755	.9782	.9806	.9830	.9851	.9872	.9891	.9908	.9924	0'
	199°	198°	197°	196°	195°	194°	193°	192°	191°	190°	

	170°	171°	172°	173°	174°	175°	176°	177°	178°	179°	
0'	.9924	.9938	.9951	.9963	.9973	.9981	.9988	.9993	.9997	.9999	60'
2'	.9925	.9939	.9952	.9963	.9973	.9981	.9988	.9993	.9997	.9999	58'
4'	.9925	.9939	.9952	.9963	.9973	.9981	.9988	.9993	.9997	.9999	56'
6'	.9926	.9940	.9953	.9964	.9974	.9982	.9988	.9994	.9997	.9999	54'
8'	.9926	.9940	.9953	.9964	.9974	.9982	.9989	.9994	.9997	.9999	52'
10'	.9927	.9941	.9953	.9964	.9974	.9982	.9989	.9994	.9997	.9999	50'
12'	.9927	.9941	.9954	.9965	.9974	.9982	.9989	.9994	.9998	1.000	48'
14'	.9928	.9942	.9954	.9965	.9975	.9983	.9989	.9994	.9998	1.000	46'
16'	.9928	.9942	.9955	.9966	.9975	.9983	.9989	.9994	.9998	1.000	44'
18'	.9929	.9942	.9955	.9966	.9975	.9983	.9990	.9994	.9998	1.000	42'
20'	.9929	.9943	.9955	.9966	.9976	.9983	.9990	.9995	.9998	1.000	40'
22'	.9929	.9943	.9956	.9967	.9976	.9984	.9990	.9995	.9998	1.000	38'
24'	.9930	.9944	.9956	.9967	.9976	.9984	.9990	.9995	.9998	1.000	36'
26'	.9930	.9944	.9956	.9967	.9976	.9984	.9990	.9995	.9998	1.000	34'
28'	.9931	.9945	.9957	.9968	.9977	.9984	.9990	.9995	.9998	1.000	32'
30'	.9931	.9945	.9957	.9968	.9977	.9985	.9991	.9995	.9998	1.000	30'
32'	.9932	.9946	.9958	.9968	.9977	.9985	.9991	.9995	.9998	1.000	28'
34'	.9932	.9946	.9958	.9969	.9978	.9985	.9991	.9995	.9998	1.000	26'
36'	.9933	.9946	.9958	.9969	.9978	.9985	.9991	.9996	.9999	1.000	24'
38'	.9933	.9947	.9959	.9969	.9978	.9985	.9991	.9996	.9999	1.000	22'
40'	.9934	.9947	.9959	.9969	.9978	.9986	.9992	.9996	.9999	1.000	20'
42'	.9934	.9948	.9959	.9970	.9979	.9986	.9992	.9996	.9999	1.000	18'
44'	.9935	.9948	.9960	.9970	.9979	.9986	.9992	.9996	.9999	1.000	16'
46'	.9935	.9948	.9960	.9970	.9979	.9986	.9992	.9996	.9999	1.000	14'
48'	.9936	.9949	.9961	.9971	.9979	.9987	.9992	.9996	.9999	1.000	12'
50'	.9936	.9949	.9961	.9971	.9980	.9987	.9992	.9996	.9999	1.000	10'
52'	.9937	.9950	.9961	.9971	.9980	.9987	.9993	.9997	.9999	1.000	8'
54'	.9937	.9950	.9962	.9972	.9980	.9987	.9993	.9997	.9999	1.000	6'
56'	.9938	.9951	.9962	.9972	.9980	.9987	.9993	.9997	.9999	1.000	4'
58'	.9938	.9951	.9962	.9972	.9981	.9988	.9993	.9997	.9999	1.000	2'
60'	.9938	.9951	.9963	.9973	.9981	.9988	.9993	.9997	.9999	1.000	0'
	189°	188°	187°	186°	185°	184°	183°	182°	181°	180°	