

Tables for Diagonalizing Second-Order Matrices

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Sets of tables are given to facilitate the evaluation of the eigenvalues and eigenvectors of second-order matrices.

The tables were prepared to facilitate hand computation of the eigenvalues and eigenvectors of a second-order matrix. A straightforward calculation with a desk computer requires about 5 min, whereas with the tables the time is about 1 min. The times involved are small in either case, so that the tables are useful only because the calculation must be made frequently in some branches of physics.

It is common in theoretical atomic and nuclear spectroscopy to estimate the eigenvalues of large matrices by eliminating large off-diagonal elements and then by applying perturbation theory. The elimination of each off-diagonal element in the large matrix requires the calculation of eigenvalues and eigenvectors for a second-order matrix. The number of large elements that must be eliminated before perturbation theory can be applied is about the same as the order of the matrix in many of these applications.

The first part of the procedure just described is that of the Jacobi method, which is often used to find eigenvalues and eigenvectors of a large matrix with a digital computer. By using a computer, it is practical to reduce all nondiagonal elements to very small values, so that the subsequent application of perturbation theory is unnecessary. This machine procedure has not been used very much for hand computations, but it is hoped that with the help of these tables a reasonably fast hand calculation can be patterned along the lines of the Jacobi method.

Without any loss of generality, the second-order matrix can be assumed to have the form

$$U = \begin{pmatrix} A & C \\ C & B \end{pmatrix} \quad (1)$$

$$A \geq B \quad C > 0.$$

Ordinarily, the eigenvalues of the matrix would be computed with the formula

$$E^{\pm} = \frac{1}{2}(A+B) \pm \frac{1}{2}\sqrt{(A-B)^2 + (2C)^2}. \quad (2)$$

The eigenvectors are defined as the columns of a matrix S that diagonalizes U .

$$S^{-1}U S = \begin{pmatrix} E^+ & 0 \\ 0 & E^- \end{pmatrix} \quad S = \begin{pmatrix} a & -b \\ b & a \end{pmatrix}. \quad (3)$$

The matrix S would be calculated by use of the relations

$$\frac{b}{a} = \frac{E^+ - A}{C} = \frac{B - E^-}{C} \quad (4a)$$

and

$$a^2 + b^2 = 1. \quad (4b)$$

The procedure used with these tables is easily shown equivalent to the above method. The tables are in two parts, the first (tables 1 to 6) being applicable when C is less than $(A-B)$, and the second (tables 7 to 12) when it is greater. The ratio of C to $(A-B)$ is evaluated in the first case, and the ratio of $(A-B)$ to C in the second. The values of a and b are given directly by entering the tables with the value of this ratio, and each of the eigenvalues is obtained with an additional multiplication and addition. More explicitly, the angle θ is defined by the equation

$$\theta = \arctan \frac{2C}{(A-B)}. \quad (5)$$

It is then easy to show that

$$E^+ = A + C \tan \frac{\theta}{2} \quad E^- = B - C \tan \frac{\theta}{2} \quad (6a)$$

and

$$a = \cos \frac{\theta}{2} \quad b = \sin \frac{\theta}{2}. \quad (6b)$$

The tables list $\tan \theta/2$, $\sin \theta/2$, and $\cos \theta/2$ as functions of the ratio $C/(A-B)$ when C is less than $(A-B)$, and as functions of $(A-B)/C$ when C is greater than $(A-B)$. The method could, of course, be applied by using tables of trigonometric functions that have already been published. An additional step of evaluating θ explicitly with relation (5) is required, preferably with tables of the arc tan function. It is then necessary to refer to one or more other sets of tables to determine the functions of the half angle.

An example is given to illustrate the use of the tables with a symmetric third-order matrix. Successive lines of the matrix correspond to the transformed form of the original matrix at successive stages, the given matrix having the element on the top line in each square (only the upper-right half of the matrix is given).

39097	1795	-1130	
39478	0	-871	
39478	-450	-745	

(25)	31021	1130	
	30640	1340	
	31450	0	

(50)	(0)	29233	
		29233	
		29423	

39553	31425	28373	
(39555)	(31418)	(28378)	(exact values).

To get the second line, a rotation is carried out, which reduces the element 1795 to zero;

$$\begin{array}{ccccccc}
 39097 & 1795 & -1130 & & & & \\
 31021 & (0.222) & 1130 & \left(\begin{array}{cc} 0.21202 & 0.97825 \\ & 0.20741 \end{array} \right) & & & \\
 & & & & 39478 & 0 & -871 \\
 & & & & 30640 & & 1340.
 \end{array}$$

The ratio of C (i. e., 1795) to $A-B$ (i. e., 8076) was taken to three significant figures, $(C/(A-B)=0.222)$ and the values of the corresponding trigonometric functions (given in parentheses) were taken direct from the tables without interpolation. The new values of the matrix elements are given on the right-hand side;

$$\begin{aligned}
 39478 &= 39097 + 1795 \times 0.21202 \\
 30640 &= 31021 - 1795 \times 0.21202 \\
 -871 &= (-1130) \times 0.97825 + 1130 \times 0.20741 \\
 1340 &= 1130 \times 0.97825 + (-1130) \times (-0.20741).
 \end{aligned}$$

The largest nondiagonal element in the matrix is now 1340, and to get the third line of the matrix a similar rotation is carried out to reduce this to zero;

$$\begin{array}{ccccccc}
 30640 & 1340 & 0 & & & & \\
 29233 & (.952) & -871 & \left(\begin{array}{cc} 0.60432 & 0.85586 \\ & 0.51721 \end{array} \right) & & & \\
 & & & & 31450 & 0 & -450 \\
 & & & & 28423 & & -745.
 \end{array}$$

The nondiagonal elements are reduced to less than a tenth the difference between the diagonal elements they connect at this stage. The perturbations—i. e., the ratio of the square of the nondiagonal element to the difference between the elements it connects—are inserted on the lower-left half of the matrix and combined with the diagonal elements to give the estimated eigenvalues 39553, 31425, and 28373. These agree with the exact values to 0.07 percent of the spread of eigenvalues or better. With practice, successive rows of the matrix can be written down without recopying the previous pair of rows. After several rotations are carried out, the matrix must be recopied, and the previous stages of the calculation checked by verifying the constancy of the trace and the norm. The eigenvectors can be obtained at the same time, but the time and effort required is approximately doubled.

TABLES 1 to 6. *Independent argument equals C/(A-B).*

C/ A-B	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.000 TAN	0.00000	0.00100	0.00200	0.00300	0.00400	0.00500	0.00600	0.00700	0.00800	0.00900
SIN	0.00000	0.00100	0.00200	0.00300	0.00400	0.00500	0.00600	0.00700	0.00800	0.00900
COS	1.00000	1.00000	1.00000	1.00000	0.99999	0.99999	0.99998	0.99998	0.99997	0.99996
0.010 TAN	0.01000	0.01100	0.01200	0.01300	0.01400	0.01500	0.01600	0.01700	0.01799	0.01899
SIN	0.01000	0.01100	0.01200	0.01300	0.01400	0.01499	0.01599	0.01699	0.01799	0.01899
COS	0.99995	0.99994	0.99993	0.99992	0.99990	0.99989	0.99987	0.99986	0.99984	0.99982
0.020 TAN	0.01999	0.02099	0.02199	0.02299	0.02399	0.02498	0.02598	0.02698	0.02798	0.02898
SIN	0.01999	0.02099	0.02198	0.02298	0.02398	0.02498	0.02597	0.02697	0.02797	0.02896
COS	0.99980	0.99978	0.99976	0.99974	0.99971	0.99969	0.99966	0.99964	0.99961	0.99958
0.030 TAN	0.02997	0.03097	0.03197	0.03296	0.03396	0.03496	0.03595	0.03695	0.03795	0.03894
SIN	0.02996	0.03096	0.03195	0.03295	0.03394	0.03494	0.03593	0.03692	0.03792	0.03891
COS	0.99955	0.99952	0.99949	0.99946	0.99942	0.99939	0.99935	0.99932	0.99928	0.99924
0.040 TAN	0.03994	0.04093	0.04193	0.04292	0.04392	0.04491	0.04590	0.04690	0.04789	0.04888
SIN	0.03990	0.04090	0.04189	0.04288	0.04387	0.04486	0.04585	0.04685	0.04784	0.04882
COS	0.99920	0.99916	0.99912	0.99908	0.99904	0.99899	0.99895	0.99890	0.99886	0.99881
0.050 TAN	0.04988	0.05087	0.05186	0.05285	0.05384	0.05483	0.05583	0.05682	0.05781	0.05880
SIN	0.04981	0.05080	0.05179	0.05278	0.05377	0.05475	0.05574	0.05672	0.05771	0.05869
COS	0.99876	0.99871	0.99866	0.99861	0.99855	0.99850	0.99845	0.99839	0.99833	0.99828
0.060 TAN	0.05979	0.06077	0.06176	0.06275	0.06374	0.06473	0.06571	0.06670	0.06769	0.06867
SIN	0.05968	0.06066	0.06165	0.06263	0.06361	0.06459	0.06557	0.06655	0.06753	0.06851
COS	0.99822	0.99816	0.99810	0.99804	0.99797	0.99791	0.99785	0.99778	0.99772	0.99765
0.070 TAN	0.06966	0.07065	0.07163	0.07262	0.07360	0.07458	0.07557	0.07655	0.07753	0.07851
SIN	0.06949	0.07047	0.07145	0.07242	0.07340	0.07438	0.07535	0.07633	0.07730	0.07827
COS	0.99758	0.99751	0.99744	0.99737	0.99730	0.99723	0.99716	0.99708	0.99701	0.99693
0.080 TAN	0.07949	0.08048	0.08146	0.08244	0.08342	0.08439	0.08537	0.08635	0.08733	0.08831
SIN	0.07924	0.08022	0.08119	0.08216	0.08313	0.08410	0.08506	0.08603	0.08700	0.08796
COS	0.99686	0.99678	0.99670	0.99662	0.99654	0.99646	0.99638	0.99629	0.99621	0.99612
0.090 TAN	0.08928	0.09026	0.09123	0.09221	0.09318	0.09416	0.09513	0.09610	0.09708	0.09805
SIN	0.08893	0.08989	0.09086	0.09182	0.09278	0.09374	0.09470	0.09566	0.09662	0.09758
COS	0.99604	0.99595	0.99586	0.99578	0.99569	0.99560	0.99551	0.99541	0.99532	0.99523
0.100 TAN	0.09902	0.09999	0.10096	0.10193	0.10290	0.10387	0.10483	0.10580	0.10677	0.10773
SIN	0.09854	0.09949	0.10045	0.10140	0.10236	0.10331	0.10426	0.10521	0.10617	0.10711
COS	0.99513	0.99504	0.99494	0.99485	0.99475	0.99465	0.99455	0.99445	0.99435	0.99425
0.110 TAN	0.10870	0.10967	0.11063	0.11159	0.11256	0.11352	0.11448	0.11544	0.11640	0.11736
SIN	0.10806	0.10901	0.10996	0.11090	0.11185	0.11279	0.11374	0.11468	0.11562	0.11656
COS	0.99414	0.99404	0.99394	0.99383	0.99373	0.99362	0.99351	0.99340	0.99329	0.99318
0.120 TAN	0.11832	0.11928	0.12024	0.12119	0.12215	0.12311	0.12406	0.12502	0.12597	0.12692
SIN	0.11750	0.11844	0.11938	0.12031	0.12125	0.12218	0.12312	0.12405	0.12498	0.12591
COS	0.99307	0.99296	0.99285	0.99274	0.99262	0.99251	0.99239	0.99228	0.99216	0.99204
0.130 TAN	0.12787	0.12883	0.12978	0.13073	0.13168	0.13263	0.13357	0.13452	0.13547	0.13641
SIN	0.12684	0.12777	0.12870	0.12962	0.13055	0.13147	0.13240	0.13332	0.13424	0.13516
COS	0.99192	0.99180	0.99168	0.99156	0.99144	0.99132	0.99120	0.99107	0.99095	0.99082
0.140 TAN	0.13736	0.13830	0.13925	0.14019	0.14113	0.14207	0.14301	0.14395	0.14489	0.14583
SIN	0.13608	0.13700	0.13792	0.13883	0.13975	0.14066	0.14157	0.14248	0.14340	0.14430
COS	0.99070	0.99057	0.99044	0.99032	0.99019	0.99006	0.98993	0.98980	0.98967	0.98953
0.150 TAN	0.14677	0.14771	0.14864	0.14958	0.15051	0.15144	0.15238	0.15331	0.15424	0.15517
SIN	0.14521	0.14612	0.14703	0.14793	0.14883	0.14974	0.15064	0.15154	0.15244	0.15334
COS	0.98940	0.98927	0.98913	0.98900	0.98886	0.98873	0.98859	0.98845	0.98831	0.98817
0.160 TAN	0.15610	0.15703	0.15796	0.15889	0.15981	0.16074	0.16166	0.16259	0.16351	0.16443
SIN	0.15423	0.15513	0.15602	0.15692	0.15781	0.15870	0.15959	0.16048	0.16137	0.16225
COS	0.98803	0.98789	0.98775	0.98761	0.98747	0.98733	0.98718	0.98704	0.98689	0.98675
0.170 TAN	0.16535	0.16627	0.16719	0.16811	0.16903	0.16995	0.17086	0.17178	0.17269	0.17361
SIN	0.16314	0.16402	0.16490	0.16578	0.16666	0.16754	0.16842	0.16930	0.17017	0.17105
COS	0.98660	0.98646	0.98631	0.98616	0.98601	0.98586	0.98572	0.98557	0.98541	0.98526
0.180 TAN	0.17452	0.17543	0.17634	0.17725	0.17816	0.17907	0.17998	0.18088	0.18179	0.18269
SIN	0.17192	0.17279	0.17366	0.17453	0.17540	0.17626	0.17713	0.17799	0.17886	0.17972
COS	0.98511	0.98496	0.98481	0.98465	0.98450	0.98434	0.98419	0.98403	0.98388	0.98372
0.190 TAN	0.18360	0.18450	0.18540	0.18630	0.18720	0.18810	0.18900	0.18990	0.19079	0.19169
SIN	0.18058	0.18144	0.18229	0.18315	0.18400	0.18486	0.18571	0.18656	0.18741	0.18826
COS	0.98356	0.98340	0.98324	0.98309	0.98293	0.98277	0.98260	0.98244	0.98228	0.98212

TABLE 2.

C/ A-B	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.200 TAN	0.19258	0.19348	0.19437	0.19526	0.19615	0.19704	0.19793	0.19882	0.19970	0.20059
SIN	0.18911	0.18995	0.19080	0.19164	0.19248	0.19332	0.19416	0.19500	0.19584	0.19667
COS	0.98196	0.98179	0.98163	0.98147	0.98130	0.98114	0.98097	0.98080	0.98064	0.98047
0.210 TAN	0.20148	0.20236	0.20324	0.20412	0.20501	0.20589	0.20677	0.20764	0.20852	0.20940
SIN	0.19751	0.19834	0.19917	0.20000	0.20083	0.20166	0.20248	0.20331	0.20413	0.20495
COS	0.98030	0.98013	0.97996	0.97980	0.97963	0.97946	0.97929	0.97912	0.97894	0.97877
0.220 TAN	0.21027	0.21115	0.21202	0.21289	0.21376	0.21463	0.21550	0.21637	0.21724	0.21811
SIN	0.20577	0.20659	0.20741	0.20823	0.20904	0.20986	0.21067	0.21148	0.21229	0.21310
COS	0.97860	0.97843	0.97825	0.97808	0.97791	0.97773	0.97756	0.97738	0.97721	0.97703
0.230 TAN	0.21897	0.21984	0.22070	0.22156	0.22242	0.22328	0.22414	0.22500	0.22586	0.22672
SIN	0.21390	0.21471	0.21551	0.21632	0.21712	0.21792	0.21872	0.21951	0.22031	0.22110
COS	0.97685	0.97668	0.97650	0.97632	0.97615	0.97597	0.97579	0.97561	0.97543	0.97525
0.240 TAN	0.22757	0.22842	0.22928	0.23013	0.23098	0.23183	0.23268	0.23353	0.23438	0.23522
SIN	0.22190	0.22269	0.22348	0.22427	0.22506	0.22584	0.22663	0.22741	0.22819	0.22897
COS	0.97507	0.97489	0.97471	0.97453	0.97435	0.97416	0.97398	0.97380	0.97362	0.97343
0.250 TAN	0.23607	0.23691	0.23775	0.23860	0.23944	0.24028	0.24112	0.24195	0.24279	0.24363
SIN	0.22975	0.23053	0.23131	0.23208	0.23286	0.23363	0.23440	0.23517	0.23594	0.23670
COS	0.97325	0.97307	0.97288	0.97270	0.97251	0.97233	0.97214	0.97195	0.97177	0.97158
0.260 TAN	0.24446	0.24530	0.24613	0.24696	0.24779	0.24862	0.24945	0.25028	0.25110	0.25193
SIN	0.23747	0.23823	0.23900	0.23976	0.24052	0.24127	0.24203	0.24279	0.24354	0.24429
COS	0.97140	0.97121	0.97102	0.97083	0.97065	0.97046	0.97027	0.97008	0.96989	0.96970
0.270 TAN	0.25275	0.25357	0.25440	0.25522	0.25604	0.25686	0.25767	0.25849	0.25931	0.26012
SIN	0.24505	0.24580	0.24654	0.24729	0.24804	0.24878	0.24952	0.25027	0.25101	0.25174
COS	0.96951	0.96932	0.96913	0.96894	0.96875	0.96856	0.96837	0.96818	0.96799	0.96779
0.280 TAN	0.26094	0.26175	0.26256	0.26337	0.26418	0.26499	0.26579	0.26660	0.26741	0.26821
SIN	0.25248	0.25322	0.25395	0.25468	0.25542	0.25615	0.25688	0.25760	0.25833	0.25905
COS	0.96760	0.96741	0.96722	0.96702	0.96683	0.96664	0.96644	0.96625	0.96606	0.96586
0.290 TAN	0.26901	0.26981	0.27062	0.27142	0.27221	0.27301	0.27381	0.27460	0.27540	0.27619
SIN	0.25978	0.26050	0.26122	0.26194	0.26266	0.26337	0.26409	0.26480	0.26551	0.26622
COS	0.96567	0.96547	0.96528	0.96508	0.96489	0.96469	0.96450	0.96430	0.96411	0.96391
0.300 TAN	0.27698	0.27777	0.27856	0.27935	0.28014	0.28093	0.28171	0.28250	0.28328	0.28407
SIN	0.26693	0.26764	0.26835	0.26905	0.26976	0.27046	0.27116	0.27186	0.27256	0.27325
COS	0.96372	0.96352	0.96332	0.96313	0.96293	0.96273	0.96253	0.96234	0.96214	0.96194
0.310 TAN	0.28485	0.28563	0.28641	0.28718	0.28796	0.28874	0.28951	0.29029	0.29106	0.29183
SIN	0.27395	0.27464	0.27534	0.27603	0.27672	0.27741	0.27809	0.27878	0.27946	0.28015
COS	0.96174	0.96155	0.96135	0.96115	0.96095	0.96075	0.96055	0.96036	0.96016	0.95996
0.320 TAN	0.29260	0.29337	0.29414	0.29491	0.29567	0.29644	0.29720	0.29797	0.29873	0.29949
SIN	0.28083	0.28151	0.28219	0.28286	0.28354	0.28421	0.28489	0.28556	0.28623	0.28690
COS	0.95976	0.95956	0.95936	0.95916	0.95896	0.95876	0.95856	0.95836	0.95816	0.95796
0.330 TAN	0.30025	0.30101	0.30177	0.30252	0.30328	0.30403	0.30479	0.30554	0.30629	0.30704
SIN	0.28757	0.28823	0.28890	0.28956	0.29023	0.29089	0.29155	0.29220	0.29286	0.29352
COS	0.95776	0.95756	0.95736	0.95716	0.95696	0.95676	0.95656	0.95636	0.95615	0.95595
0.340 TAN	0.30779	0.30854	0.30928	0.31003	0.31078	0.31152	0.31226	0.31300	0.31374	0.31448
SIN	0.29417	0.29482	0.29548	0.29613	0.29677	0.29742	0.29807	0.29871	0.29936	0.30000
COS	0.95575	0.95555	0.95535	0.95515	0.95495	0.95475	0.95454	0.95434	0.95414	0.95394
0.350 TAN	0.31522	0.31596	0.31670	0.31743	0.31816	0.31890	0.31963	0.32036	0.32109	0.32182
SIN	0.30064	0.30128	0.30192	0.30255	0.30319	0.30382	0.30446	0.30509	0.30572	0.30635
COS	0.95374	0.95354	0.95333	0.95313	0.95293	0.95273	0.95253	0.95232	0.95212	0.95192
0.360 TAN	0.32255	0.32327	0.32400	0.32472	0.32545	0.32617	0.32689	0.32761	0.32833	0.32905
SIN	0.30697	0.30760	0.30822	0.30885	0.30947	0.31009	0.31071	0.31133	0.31195	0.31256
COS	0.95172	0.95152	0.95131	0.95111	0.95091	0.95071	0.95050	0.95030	0.95010	0.94990
0.370 TAN	0.32976	0.33048	0.33119	0.33191	0.33262	0.33333	0.33404	0.33475	0.33546	0.33617
SIN	0.31318	0.31379	0.31440	0.31501	0.31562	0.31623	0.31683	0.31744	0.31804	0.31865
COS	0.94970	0.94949	0.94929	0.94909	0.94889	0.94868	0.94848	0.94828	0.94808	0.94787
0.380 TAN	0.33688	0.33758	0.33828	0.33899	0.33969	0.34039	0.34109	0.34179	0.34249	0.34318
SIN	0.31925	0.31985	0.32045	0.32104	0.32164	0.32223	0.32283	0.32342	0.32401	0.32460
COS	0.94767	0.94747	0.94727	0.94706	0.94686	0.94666	0.94646	0.94626	0.94605	0.94585
0.390 TAN	0.34388	0.34458	0.34527	0.34596	0.34665	0.34734	0.34803	0.34872	0.34941	0.35010
SIN	0.32519	0.32578	0.32636	0.32695	0.32753	0.32811	0.32870	0.32927	0.32985	0.33043
COS	0.94565	0.94545	0.94524	0.94504	0.94484	0.94464	0.94444	0.94423	0.94403	0.94383

TABLE 3.

C/ A-B	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.400 TAN	0.35078	0.35146	0.35215	0.35283	0.35351	0.35419	0.35487	0.35555	0.35623	0.35690
0.400 SIN	0.33101	0.33158	0.33215	0.33273	0.33330	0.33387	0.33444	0.33500	0.33557	0.33613
0.400 COS	0.94363	0.94343	0.94322	0.94302	0.94282	0.94262	0.94242	0.94222	0.94202	0.94181
0.410 TAN	0.35758	0.35825	0.35892	0.35960	0.36027	0.36094	0.36160	0.36227	0.36294	0.36360
0.410 SIN	0.33670	0.33726	0.33782	0.33838	0.33894	0.33950	0.34005	0.34061	0.34116	0.34172
0.410 COS	0.94161	0.94141	0.94121	0.94101	0.94081	0.94061	0.94041	0.94020	0.94000	0.93980
0.420 TAN	0.36427	0.36493	0.36560	0.36626	0.36692	0.36758	0.36824	0.36889	0.36955	0.37020
0.420 SIN	0.34227	0.34282	0.34337	0.34392	0.34446	0.34501	0.34555	0.34609	0.34664	0.34718
0.420 COS	0.93960	0.93940	0.93920	0.93900	0.93880	0.93860	0.93840	0.93820	0.93800	0.93780
0.430 TAN	0.37086	0.37151	0.37216	0.37282	0.37347	0.37412	0.37476	0.37541	0.37606	0.37670
0.430 SIN	0.34772	0.34826	0.34879	0.34933	0.34986	0.35040	0.35093	0.35146	0.35199	0.35252
0.430 COS	0.93760	0.93740	0.93720	0.93700	0.93680	0.93660	0.93640	0.93620	0.93600	0.93580
0.440 TAN	0.37735	0.37799	0.37863	0.37927	0.37991	0.38055	0.38119	0.38183	0.38247	0.38310
0.440 SIN	0.35305	0.35357	0.35410	0.35462	0.35515	0.35567	0.35619	0.35671	0.35723	0.35775
0.440 COS	0.93561	0.93541	0.93521	0.93501	0.93481	0.93461	0.93441	0.93421	0.93402	0.93382
0.450 TAN	0.38374	0.38437	0.38500	0.38563	0.38626	0.38689	0.38752	0.38815	0.38877	0.38940
0.450 SIN	0.35826	0.35878	0.35929	0.35981	0.36032	0.36083	0.36134	0.36185	0.36235	0.36286
0.450 COS	0.93362	0.93342	0.93322	0.93303	0.93283	0.93263	0.93243	0.93224	0.93204	0.93184
0.460 TAN	0.39002	0.39065	0.39127	0.39189	0.39251	0.39313	0.39375	0.39437	0.39499	0.39560
0.460 SIN	0.36337	0.36387	0.36437	0.36487	0.36537	0.36587	0.36637	0.36687	0.36737	0.36786
0.460 COS	0.93165	0.93145	0.93125	0.93106	0.93086	0.93066	0.93047	0.93027	0.93008	0.92988
0.470 TAN	0.39622	0.39683	0.39744	0.39805	0.39866	0.39927	0.39988	0.40049	0.40110	0.40170
0.470 SIN	0.36836	0.36885	0.36934	0.36983	0.37032	0.37081	0.37130	0.37178	0.37227	0.37275
0.470 COS	0.92968	0.92949	0.92929	0.92910	0.92890	0.92871	0.92851	0.92832	0.92812	0.92793
0.480 TAN	0.40231	0.40291	0.40352	0.40412	0.40472	0.40532	0.40592	0.40652	0.40712	0.40771
0.480 SIN	0.37324	0.37372	0.37420	0.37468	0.37516	0.37564	0.37611	0.37659	0.37707	0.37754
0.480 COS	0.92774	0.92754	0.92735	0.92715	0.92696	0.92677	0.92657	0.92638	0.92619	0.92599
0.490 TAN	0.40831	0.40890	0.40950	0.41009	0.41068	0.41127	0.41186	0.41245	0.41304	0.41363
0.490 SIN	0.37801	0.37848	0.37895	0.37942	0.37989	0.38036	0.38083	0.38129	0.38176	0.38222
0.490 COS	0.92580	0.92561	0.92542	0.92522	0.92503	0.92484	0.92465	0.92445	0.92426	0.92407
0.500 TAN	0.41421	0.41480	0.41538	0.41597	0.41655	0.41713	0.41771	0.41829	0.41887	0.41945
0.500 SIN	0.38268	0.38314	0.38360	0.38406	0.38452	0.38498	0.38544	0.38589	0.38635	0.38680
0.500 COS	0.92388	0.92369	0.92350	0.92331	0.92312	0.92292	0.92273	0.92254	0.92235	0.92216
0.510 TAN	0.42002	0.42060	0.42118	0.42175	0.42232	0.42290	0.42347	0.42404	0.42461	0.42518
0.510 SIN	0.38725	0.38770	0.38815	0.38860	0.38905	0.38950	0.38995	0.39039	0.39084	0.39128
0.510 COS	0.92197	0.92178	0.92159	0.92141	0.92122	0.92103	0.92084	0.92065	0.92046	0.92027
0.520 TAN	0.42574	0.42631	0.42688	0.42744	0.42801	0.42857	0.42913	0.42970	0.43026	0.43082
0.520 SIN	0.39172	0.39216	0.39260	0.39304	0.39348	0.39392	0.39436	0.39479	0.39523	0.39566
0.520 COS	0.92008	0.91990	0.91971	0.91952	0.91933	0.91915	0.91896	0.91877	0.91858	0.91840
0.530 TAN	0.43137	0.43193	0.43249	0.43305	0.43350	0.43416	0.43471	0.43526	0.43581	0.43637
0.530 SIN	0.39609	0.39652	0.39696	0.39739	0.39781	0.39824	0.39867	0.39910	0.39952	0.39995
0.530 COS	0.91821	0.91802	0.91784	0.91765	0.91747	0.91728	0.91709	0.91691	0.91672	0.91654
0.540 TAN	0.43692	0.43747	0.43801	0.43856	0.43911	0.43965	0.44020	0.44074	0.44129	0.44183
0.540 SIN	0.40037	0.40079	0.40121	0.40163	0.40205	0.40247	0.40289	0.40331	0.40372	0.40414
0.540 COS	0.91635	0.91617	0.91598	0.91579	0.91562	0.91543	0.91525	0.91506	0.91488	0.91470
0.550 TAN	0.44237	0.44291	0.44345	0.44399	0.44453	0.44506	0.44560	0.44614	0.44667	0.44720
0.550 SIN	0.40455	0.40497	0.40538	0.40579	0.40620	0.40661	0.40702	0.40743	0.40783	0.40824
0.550 COS	0.91451	0.91433	0.91415	0.91397	0.91378	0.91360	0.91342	0.91324	0.91306	0.91287
0.560 TAN	0.44774	0.44827	0.44880	0.44933	0.44986	0.45039	0.45092	0.45144	0.45197	0.45250
0.560 SIN	0.40865	0.40905	0.40945	0.40986	0.41026	0.41066	0.41106	0.41146	0.41186	0.41225
0.560 COS	0.91269	0.91251	0.91233	0.91215	0.91197	0.91179	0.91161	0.91143	0.91125	0.91107
0.570 TAN	0.45302	0.45354	0.45407	0.45459	0.45511	0.45563	0.45615	0.45667	0.45719	0.45770
0.570 SIN	0.41265	0.41305	0.41344	0.41384	0.41423	0.41462	0.41501	0.41540	0.41579	0.41618
0.570 COS	0.91089	0.91071	0.91053	0.91035	0.91017	0.90999	0.90982	0.90964	0.90946	0.90928
0.580 TAN	0.45822	0.45873	0.45925	0.45976	0.46028	0.46079	0.46130	0.46181	0.46232	0.46283
0.580 SIN	0.41657	0.41696	0.41734	0.41773	0.41811	0.41850	0.41888	0.41926	0.41964	0.42002
0.580 COS	0.90910	0.90893	0.90875	0.90857	0.90839	0.90822	0.90804	0.90787	0.90769	0.90751
0.590 TAN	0.46334	0.46384	0.46435	0.46486	0.46536	0.46587	0.46637	0.46687	0.46737	0.46787
0.590 SIN	0.42040	0.42078	0.42116	0.42154	0.42191	0.42229	0.42266	0.42304	0.42341	0.42378
0.590 COS	0.90734	0.90716	0.90699	0.90681	0.90664	0.90646	0.90629	0.90611	0.90594	0.90576

TABLE 4.

C/ A-B	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.600 TAN	0.46837	0.46887	0.46937	0.46987	0.47037	0.47086	0.47136	0.47185	0.47235	0.47284
SIN	0.42415	0.42453	0.42490	0.42526	0.42563	0.42600	0.42637	0.42673	0.42710	0.42746
COS	0.90559	0.90542	0.90524	0.90507	0.90490	0.90472	0.90455	0.90438	0.90421	0.90403
0.610 TAN	0.47333	0.47382	0.47431	0.47480	0.47529	0.47578	0.47627	0.47676	0.47724	0.47773
SIN	0.42783	0.42819	0.42855	0.42891	0.42927	0.42963	0.42999	0.43035	0.43071	0.43106
COS	0.90386	0.90369	0.90352	0.90335	0.90317	0.90300	0.90283	0.90266	0.90249	0.90232
0.620 TAN	0.47821	0.47870	0.47918	0.47966	0.48014	0.48062	0.48110	0.48158	0.48206	0.48254
SIN	0.43142	0.43178	0.43213	0.43248	0.43284	0.43319	0.43354	0.43389	0.43424	0.43459
COS	0.90215	0.90198	0.90181	0.90164	0.90147	0.90130	0.90113	0.90097	0.90080	0.90063
0.630 TAN	0.48302	0.48349	0.48397	0.48444	0.48492	0.48539	0.48586	0.48633	0.48681	0.48728
SIN	0.43494	0.43529	0.43563	0.43598	0.43632	0.43667	0.43701	0.43736	0.43770	0.43804
COS	0.90046	0.90029	0.90012	0.89996	0.89979	0.89962	0.89946	0.89929	0.89912	0.89896
0.640 TAN	0.48775	0.48821	0.48868	0.48915	0.48962	0.49008	0.49055	0.49101	0.49148	0.49194
SIN	0.43838	0.43872	0.43906	0.43940	0.43974	0.44007	0.44041	0.44075	0.44108	0.44142
COS	0.89879	0.89862	0.89846	0.89829	0.89813	0.89796	0.89780	0.89763	0.89747	0.89730
0.650 TAN	0.49240	0.49286	0.49332	0.49378	0.49424	0.49470	0.49516	0.49562	0.49607	0.49653
SIN	0.44175	0.44208	0.44242	0.44275	0.44308	0.44341	0.44374	0.44407	0.44440	0.44472
COS	0.89714	0.89697	0.89681	0.89665	0.89648	0.89632	0.89616	0.89599	0.89583	0.89567
0.660 TAN	0.49698	0.49744	0.49789	0.49834	0.49880	0.49925	0.49970	0.50015	0.50060	0.50105
SIN	0.44505	0.44538	0.44570	0.44603	0.44635	0.44668	0.44700	0.44732	0.44764	0.44796
COS	0.89551	0.89534	0.89518	0.89502	0.89486	0.89470	0.89453	0.89437	0.89421	0.89405
0.670 TAN	0.50150	0.50194	0.50239	0.50284	0.50328	0.50372	0.50417	0.50461	0.50505	0.50550
SIN	0.44828	0.44860	0.44892	0.44924	0.44956	0.44987	0.45019	0.45050	0.45082	0.45113
COS	0.89389	0.89373	0.89357	0.89341	0.89325	0.89309	0.89293	0.89277	0.89262	0.89246
0.680 TAN	0.50594	0.50638	0.50682	0.50726	0.50769	0.50813	0.50857	0.50901	0.50944	0.50988
SIN	0.45145	0.45176	0.45207	0.45238	0.45269	0.45300	0.45331	0.45362	0.45393	0.45424
COS	0.89230	0.89214	0.89198	0.89182	0.89167	0.89151	0.89135	0.89119	0.89104	0.89088
0.690 TAN	0.51031	0.51074	0.51118	0.51161	0.51204	0.51247	0.51290	0.51333	0.51376	0.51419
SIN	0.45455	0.45485	0.45516	0.45546	0.45577	0.45607	0.45637	0.45668	0.45698	0.45728
COS	0.89072	0.89057	0.89041	0.89025	0.89010	0.88994	0.88979	0.88963	0.88948	0.88932
0.700 TAN	0.51462	0.51504	0.51547	0.51590	0.51632	0.51675	0.51717	0.51759	0.51801	0.51844
SIN	0.45758	0.45788	0.45818	0.45848	0.45878	0.45908	0.45937	0.45967	0.45996	0.46026
COS	0.88917	0.88901	0.88886	0.88871	0.88855	0.88840	0.88824	0.88809	0.88794	0.88778
0.710 TAN	0.51886	0.51928	0.51970	0.52012	0.52054	0.52095	0.52137	0.52179	0.52220	0.52262
SIN	0.46055	0.46085	0.46114	0.46143	0.46173	0.46202	0.46231	0.46260	0.46289	0.46318
COS	0.88763	0.88748	0.88733	0.88717	0.88702	0.88687	0.88672	0.88657	0.88642	0.88627
0.720 TAN	0.52303	0.52345	0.52386	0.52427	0.52469	0.52510	0.52551	0.52592	0.52633	0.52674
SIN	0.46347	0.46375	0.46404	0.46433	0.46462	0.46490	0.46519	0.46547	0.46575	0.46604
COS	0.88611	0.88596	0.88581	0.88566	0.88551	0.88536	0.88521	0.88506	0.88491	0.88476
0.730 TAN	0.52714	0.52755	0.52796	0.52837	0.52877	0.52918	0.52958	0.52999	0.53039	0.53079
SIN	0.46632	0.46660	0.46688	0.46717	0.46745	0.46773	0.46801	0.46828	0.46856	0.46884
COS	0.88462	0.88447	0.88432	0.88417	0.88402	0.88387	0.88373	0.88358	0.88343	0.88328
0.740 TAN	0.53119	0.53160	0.53200	0.53240	0.53280	0.53320	0.53359	0.53399	0.53439	0.53479
SIN	0.46912	0.46939	0.46967	0.46994	0.47022	0.47049	0.47077	0.47104	0.47131	0.47159
COS	0.88314	0.88299	0.88284	0.88270	0.88255	0.88240	0.88226	0.88211	0.88197	0.88182
0.750 TAN	0.53518	0.53558	0.53597	0.53637	0.53676	0.53715	0.53755	0.53794	0.53833	0.53872
SIN	0.47186	0.47213	0.47240	0.47267	0.47294	0.47321	0.47348	0.47374	0.47401	0.47428
COS	0.88167	0.88153	0.88138	0.88124	0.88110	0.88095	0.88081	0.88066	0.88052	0.88038
0.760 TAN	0.53911	0.53950	0.53989	0.54028	0.54067	0.54105	0.54144	0.54183	0.54222	0.54260
SIN	0.47454	0.47481	0.47507	0.47534	0.47560	0.47587	0.47613	0.47639	0.47665	0.47691
COS	0.88023	0.88009	0.87995	0.87980	0.87966	0.87952	0.87938	0.87923	0.87909	0.87895
0.770 TAN	0.54298	0.54336	0.54375	0.54413	0.54451	0.54489	0.54527	0.54565	0.54603	0.54641
SIN	0.47718	0.47744	0.47770	0.47796	0.47821	0.47847	0.47873	0.47899	0.47924	0.47950
COS	0.87881	0.87867	0.87853	0.87838	0.87824	0.87810	0.87796	0.87782	0.87768	0.87754
0.780 TAN	0.54679	0.54717	0.54755	0.54792	0.54830	0.54868	0.54905	0.54943	0.54980	0.55017
SIN	0.47976	0.48001	0.48027	0.48052	0.48077	0.48103	0.48128	0.48153	0.48178	0.48204
COS	0.87740	0.87726	0.87712	0.87698	0.87684	0.87671	0.87657	0.87643	0.87629	0.87615
0.790 TAN	0.55055	0.55092	0.55129	0.55166	0.55203	0.55240	0.55277	0.55314	0.55351	0.55388
SIN	0.48229	0.48254	0.48279	0.48304	0.48329	0.48353	0.48378	0.48403	0.48428	0.48452
COS	0.87601	0.87588	0.87574	0.87560	0.87546	0.87533	0.87519	0.87505	0.87492	0.87478

TABLE 5.

C/ A-B	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.800 TAN	0.55425	0.55461	0.55498	0.55535	0.55571	0.55608	0.55644	0.55680	0.55717	0.55753
SIN	0.48477	0.48501	0.48526	0.48550	0.48575	0.48599	0.48623	0.48648	0.48672	0.48696
COS	0.87464	0.87451	0.87437	0.87424	0.87410	0.87396	0.87383	0.87369	0.87356	0.87342
0.810 TAN	0.55789	0.55825	0.55861	0.55897	0.55933	0.55969	0.56005	0.56041	0.56077	0.56113
SIN	0.48720	0.48744	0.48768	0.48792	0.48816	0.48840	0.48864	0.48888	0.48911	0.48935
COS	0.87329	0.87316	0.87302	0.87289	0.87275	0.87262	0.87249	0.87235	0.87222	0.87209
0.820 TAN	0.56148	0.56184	0.56219	0.56255	0.56290	0.56326	0.56361	0.56397	0.56432	0.56467
SIN	0.48959	0.48982	0.49006	0.49029	0.49053	0.49076	0.49100	0.49123	0.49146	0.49170
COS	0.87195	0.87182	0.87169	0.87156	0.87142	0.87129	0.87116	0.87103	0.87090	0.87077
0.830 TAN	0.56502	0.56537	0.56572	0.56607	0.56642	0.56677	0.56712	0.56747	0.56782	0.56816
SIN	0.49193	0.49216	0.49239	0.49262	0.49285	0.49308	0.49331	0.49354	0.49377	0.49400
COS	0.87064	0.87051	0.87037	0.87024	0.87011	0.86998	0.86985	0.86972	0.86959	0.86946
0.840 TAN	0.56851	0.56885	0.56920	0.56954	0.56989	0.57023	0.57058	0.57092	0.57126	0.57160
SIN	0.49422	0.49445	0.49468	0.49490	0.49513	0.49536	0.49558	0.49581	0.49603	0.49625
COS	0.86933	0.86921	0.86908	0.86895	0.86882	0.86869	0.86856	0.86843	0.86831	0.86818
0.850 TAN	0.57195	0.57229	0.57263	0.57297	0.57331	0.57364	0.57398	0.57432	0.57466	0.57500
SIN	0.49648	0.49670	0.49692	0.49714	0.49737	0.49759	0.49781	0.49803	0.49825	0.49847
COS	0.86805	0.86792	0.86780	0.86767	0.86754	0.86741	0.86729	0.86716	0.86703	0.86691
0.860 TAN	0.57533	0.57567	0.57600	0.57634	0.57667	0.57701	0.57734	0.57767	0.57801	0.57834
SIN	0.49869	0.49891	0.49912	0.49934	0.49956	0.49978	0.49999	0.50021	0.50043	0.50064
COS	0.86678	0.86666	0.86653	0.86640	0.86628	0.86615	0.86603	0.86590	0.86578	0.86565
0.870 TAN	0.57867	0.57900	0.57933	0.57966	0.57999	0.58032	0.58065	0.58098	0.58131	0.58163
SIN	0.50086	0.50107	0.50129	0.50150	0.50171	0.50193	0.50214	0.50235	0.50256	0.50277
COS	0.86553	0.86541	0.86528	0.86516	0.86503	0.86491	0.86479	0.86466	0.86454	0.86442
0.880 TAN	0.58196	0.58229	0.58261	0.58294	0.58326	0.58359	0.58391	0.58424	0.58456	0.58488
SIN	0.50299	0.50320	0.50341	0.50362	0.50383	0.50404	0.50424	0.50445	0.50466	0.50487
COS	0.86429	0.86417	0.86405	0.86393	0.86380	0.86368	0.86356	0.86344	0.86332	0.86320
0.890 TAN	0.58520	0.58553	0.58585	0.58617	0.58649	0.58681	0.58713	0.58745	0.58777	0.58808
SIN	0.50508	0.50528	0.50549	0.50570	0.50590	0.50611	0.50631	0.50652	0.50672	0.50692
COS	0.86308	0.86295	0.86283	0.86271	0.86259	0.86247	0.86235	0.86223	0.86211	0.86199
0.900 TAN	0.58840	0.58872	0.58904	0.58935	0.58967	0.58998	0.59030	0.59061	0.59093	0.59124
SIN	0.50713	0.50733	0.50753	0.50774	0.50794	0.50814	0.50834	0.50854	0.50874	0.50894
COS	0.86187	0.86175	0.86163	0.86151	0.86139	0.86128	0.86116	0.86104	0.86092	0.86080
0.910 TAN	0.59156	0.59187	0.59218	0.59249	0.59280	0.59311	0.59343	0.59374	0.59405	0.59435
SIN	0.50914	0.50934	0.50954	0.50974	0.50994	0.51013	0.51033	0.51053	0.51073	0.51092
COS	0.86068	0.86056	0.86045	0.86033	0.86021	0.86009	0.85998	0.85986	0.85974	0.85963
0.920 TAN	0.59466	0.59497	0.59528	0.59559	0.59589	0.59620	0.59651	0.59681	0.59712	0.59742
SIN	0.51112	0.51131	0.51151	0.51171	0.51190	0.51209	0.51229	0.51248	0.51268	0.51287
COS	0.85951	0.85939	0.85928	0.85916	0.85904	0.85893	0.85881	0.85870	0.85858	0.85847
0.930 TAN	0.59773	0.59803	0.59834	0.59864	0.59894	0.59924	0.59955	0.59985	0.60015	0.60045
SIN	0.51306	0.51325	0.51345	0.51364	0.51383	0.51402	0.51421	0.51440	0.51459	0.51478
COS	0.85835	0.85824	0.85812	0.85801	0.85789	0.85778	0.85766	0.85755	0.85744	0.85732
0.940 TAN	0.60075	0.60105	0.60135	0.60165	0.60195	0.60225	0.60254	0.60284	0.60314	0.60344
SIN	0.51497	0.51516	0.51535	0.51553	0.51572	0.51591	0.51610	0.51628	0.51647	0.51666
COS	0.85721	0.85710	0.85698	0.85687	0.85676	0.85664	0.85653	0.85642	0.85631	0.85619
0.950 TAN	0.60373	0.60403	0.60432	0.60462	0.60491	0.60521	0.60550	0.60579	0.60609	0.60638
SIN	0.51684	0.51703	0.51721	0.51740	0.51758	0.51777	0.51795	0.51813	0.51832	0.51850
COS	0.85608	0.85597	0.85586	0.85574	0.85562	0.85552	0.85541	0.85530	0.85519	0.85508
0.960 TAN	0.60667	0.60696	0.60725	0.60754	0.60784	0.60813	0.60841	0.60870	0.60899	0.60928
SIN	0.51868	0.51887	0.51905	0.51923	0.51941	0.51959	0.51977	0.51995	0.52013	0.52031
COS	0.85497	0.85486	0.85475	0.85464	0.85453	0.85441	0.85431	0.85420	0.85409	0.85398
0.970 TAN	0.60957	0.60986	0.61014	0.61043	0.61072	0.61100	0.61129	0.61158	0.61186	0.61215
SIN	0.52049	0.52067	0.52085	0.52103	0.52121	0.52138	0.52156	0.52174	0.52192	0.52209
COS	0.85387	0.85376	0.85365	0.85354	0.85343	0.85332	0.85321	0.85311	0.85300	0.85289
0.980 TAN	0.61243	0.61271	0.61300	0.61328	0.61356	0.61384	0.61413	0.61441	0.61469	0.61497
SIN	0.52227	0.52244	0.52262	0.52280	0.52297	0.52315	0.52332	0.52349	0.52367	0.52384
COS	0.85278	0.85267	0.85257	0.85246	0.85235	0.85224	0.85214	0.85203	0.85192	0.85182
0.990 TAN	0.61525	0.61553	0.61581	0.61609	0.61637	0.61665	0.61692	0.61720	0.61748	0.61776
SIN	0.52401	0.52419	0.52436	0.52453	0.52470	0.52488	0.52505	0.52522	0.52539	0.52556
COS	0.85171	0.85160	0.85150	0.85139	0.85128	0.85118	0.85107	0.85097	0.85086	0.85076

TABLE 6.

C/ A-B	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
1.000 TAN	0.61803	0.61831	0.61859	0.61886	0.61914	0.61941	0.61968	0.61996	0.62023	0.62051
SIN	0.52573	0.52590	0.52607	0.52624	0.52641	0.52658	0.52675	0.52691	0.52708	0.52725
COS	0.85065	0.85055	0.85044	0.85034	0.85023	0.85013	0.85002	0.84992	0.84981	0.84971
1.010 TAN	0.62078	0.62105	0.62132	0.62159	0.62187	0.62214	0.62241	0.62268	0.62295	0.62322
SIN	0.52742	0.52758	0.52775	0.52792	0.52808	0.52825	0.52842	0.52858	0.52875	0.52891
COS	0.84961	0.84950	0.84940	0.84930	0.84919	0.84909	0.84899	0.84888	0.84878	0.84868
1.020 TAN	0.62349	0.62376	0.62402	0.62429	0.62456	0.62483	0.62509	0.62536	0.62563	0.62589
SIN	0.52908	0.52924	0.52940	0.52957	0.52973	0.52989	0.53006	0.53022	0.53038	0.53054
COS	0.84857	0.84847	0.84837	0.84827	0.84817	0.84806	0.84796	0.84786	0.84776	0.84766
1.030 TAN	0.62616	0.62642	0.62669	0.62695	0.62722	0.62748	0.62775	0.62801	0.62827	0.62853
SIN	0.53071	0.53087	0.53103	0.53119	0.53135	0.53151	0.53167	0.53183	0.53199	0.53215
COS	0.84756	0.84746	0.84735	0.84725	0.84715	0.84705	0.84695	0.84685	0.84675	0.84665
1.040 TAN	0.62880	0.62906	0.62932	0.62958	0.62984	0.63010	0.63036	0.63062	0.63088	0.63114
SIN	0.53231	0.53247	0.53263	0.53278	0.53294	0.53310	0.53326	0.53341	0.53357	0.53373
COS	0.84655	0.84645	0.84635	0.84625	0.84615	0.84605	0.84595	0.84585	0.84576	0.84566
1.050 TAN	0.63140	0.63166	0.63192	0.63217	0.63243	0.63269	0.63294	0.63320	0.63346	0.63371
SIN	0.53388	0.53404	0.53420	0.53435	0.53451	0.53466	0.53482	0.53497	0.53513	0.53528
COS	0.84556	0.84546	0.84536	0.84526	0.84516	0.84507	0.84497	0.84487	0.84477	0.84467
1.060 TAN	0.63397	0.63422	0.63448	0.63473	0.63499	0.63524	0.63549	0.63575	0.63600	0.63625
SIN	0.53543	0.53559	0.53574	0.53589	0.53605	0.53620	0.53635	0.53650	0.53666	0.53681
COS	0.84458	0.84448	0.84438	0.84429	0.84419	0.84409	0.84399	0.84390	0.84380	0.84370
1.070 TAN	0.63650	0.63675	0.63701	0.63726	0.63751	0.63776	0.63801	0.63826	0.63851	0.63876
SIN	0.53696	0.53711	0.53726	0.53741	0.53756	0.53771	0.53786	0.53801	0.53816	0.53831
COS	0.84361	0.84351	0.84342	0.84332	0.84322	0.84313	0.84303	0.84294	0.84284	0.84275
1.080 TAN	0.63900	0.63925	0.63950	0.63975	0.64000	0.64024	0.64049	0.64074	0.64098	0.64123
SIN	0.53846	0.53861	0.53876	0.53890	0.53905	0.53920	0.53935	0.53949	0.53964	0.53979
COS	0.84265	0.84256	0.84246	0.84237	0.84227	0.84218	0.84208	0.84199	0.84190	0.84180
1.090 TAN	0.64147	0.64172	0.64196	0.64221	0.64245	0.64270	0.64294	0.64318	0.64343	0.64367
SIN	0.53993	0.54008	0.54023	0.54037	0.54052	0.54066	0.54081	0.54095	0.54110	0.54124
COS	0.84171	0.84161	0.84152	0.84143	0.84133	0.84124	0.84115	0.84105	0.84096	0.84087
1.100 TAN	0.64391	0.64415	0.64440	0.64464	0.64488	0.64512	0.64536	0.64560	0.64584	0.64608
SIN	0.54139	0.54153	0.54167	0.54182	0.54196	0.54210	0.54224	0.54239	0.54253	0.54267
COS	0.84077	0.84068	0.84059	0.84050	0.84040	0.84031	0.84022	0.84013	0.84004	0.83995
1.110 TAN	0.64632	0.64656	0.64680	0.64703	0.64727	0.64751	0.64775	0.64799	0.64822	0.64846
SIN	0.54281	0.54295	0.54310	0.54324	0.54338	0.54352	0.54366	0.54380	0.54394	0.54408
COS	0.83985	0.83976	0.83967	0.83958	0.83949	0.83940	0.83931	0.83922	0.83912	0.83903
1.120 TAN	0.64870	0.64893	0.64917	0.64940	0.64964	0.64987	0.65011	0.65034	0.65057	0.65081
SIN	0.54422	0.54436	0.54450	0.54464	0.54477	0.54491	0.54505	0.54519	0.54533	0.54546
COS	0.83894	0.83885	0.83876	0.83867	0.83858	0.83849	0.83840	0.83831	0.83822	0.83813
1.130 TAN	0.65104	0.65127	0.65151	0.65174	0.65197	0.65220	0.65243	0.65267	0.65290	0.65313
SIN	0.54560	0.54574	0.54588	0.54601	0.54615	0.54628	0.54642	0.54656	0.54669	0.54683
COS	0.83804	0.83796	0.83787	0.83778	0.83769	0.83760	0.83751	0.83742	0.83733	0.83725
1.140 TAN	0.65336	0.65359	0.65382	0.65405	0.65428	0.65451	0.65473	0.65496	0.65519	0.65542
SIN	0.54696	0.54710	0.54723	0.54737	0.54750	0.54764	0.54777	0.54790	0.54804	0.54817
COS	0.83716	0.83707	0.83698	0.83689	0.83680	0.83672	0.83663	0.83654	0.83645	0.83637
1.150 TAN	0.65565	0.65587	0.65610	0.65633	0.65655	0.65678	0.65700	0.65723	0.65745	0.65768
SIN	0.54830	0.54844	0.54857	0.54870	0.54883	0.54897	0.54910	0.54923	0.54936	0.54949
COS	0.83628	0.83619	0.83611	0.83602	0.83593	0.83585	0.83576	0.83567	0.83559	0.83550
1.160 TAN	0.65790	0.65813	0.65835	0.65858	0.65880	0.65902	0.65925	0.65947	0.65969	0.65991
SIN	0.54962	0.54975	0.54988	0.55001	0.55014	0.55027	0.55040	0.55053	0.55066	0.55079
COS	0.83541	0.83533	0.83524	0.83516	0.83507	0.83498	0.83490	0.83481	0.83473	0.83464
1.170 TAN	0.66014	0.66036	0.66058	0.66080	0.66102	0.66124	0.66146	0.66168	0.66190	0.66212
SIN	0.55092	0.55105	0.55118	0.55131	0.55143	0.55156	0.55169	0.55182	0.55195	0.55207
COS	0.83456	0.83447	0.83439	0.83430	0.83422	0.83413	0.83405	0.83396	0.83388	0.83380
1.180 TAN	0.66234	0.66256	0.66278	0.66299	0.66321	0.66343	0.66365	0.66387	0.66408	0.66430
SIN	0.55220	0.55233	0.55245	0.55258	0.55271	0.55283	0.55296	0.55308	0.55321	0.55333
COS	0.83371	0.83363	0.83354	0.83346	0.83338	0.83329	0.83321	0.83313	0.83304	0.83296
1.190 TAN	0.66452	0.66473	0.66495	0.66516	0.66538	0.66559	0.66581	0.66602	0.66624	0.66645
SIN	0.55346	0.55358	0.55371	0.55383	0.55396	0.55408	0.55421	0.55433	0.55445	0.55458
COS	0.83288	0.83279	0.83271	0.83263	0.83254	0.83246	0.83238	0.83230	0.83222	0.83213

TABLES 7 to 12. *Independent argument equals (A-B)/C.*

A-B / C	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.000 TAN	1.00000	0.99950	0.99900	0.99850	0.99800	0.99750	0.99700	0.99651	0.99601	0.99551
0.000 SIN	0.70711	0.70693	0.70675	0.70658	0.70640	0.70622	0.70605	0.70587	0.70569	0.70551
0.000 COS	0.70711	0.70728	0.70746	0.70764	0.70781	0.70799	0.70817	0.70834	0.70852	0.70870
0.010 TAN	0.99501	0.99452	0.99402	0.99352	0.99302	0.99253	0.99203	0.99154	0.99104	0.99055
0.010 SIN	0.70534	0.70516	0.70498	0.70480	0.70463	0.70445	0.70427	0.70410	0.70392	0.70374
0.010 COS	0.70887	0.70905	0.70922	0.70940	0.70958	0.70975	0.70993	0.71011	0.71028	0.71046
0.020 TAN	0.99005	0.98956	0.98906	0.98857	0.98807	0.98758	0.98708	0.98659	0.98610	0.98561
0.020 SIN	0.70356	0.70338	0.70321	0.70303	0.70285	0.70267	0.70250	0.70232	0.70214	0.70196
0.020 COS	0.71063	0.71081	0.71099	0.71116	0.71134	0.71151	0.71169	0.71186	0.71204	0.71221
0.030 TAN	0.98511	0.98462	0.98413	0.98364	0.98314	0.98265	0.98216	0.98167	0.98118	0.98069
0.030 SIN	0.70178	0.70161	0.70143	0.70125	0.70107	0.70089	0.70071	0.70054	0.70036	0.70018
0.030 COS	0.71239	0.71257	0.71274	0.71292	0.71309	0.71327	0.71344	0.71362	0.71379	0.71397
0.040 TAN	0.98020	0.97971	0.97922	0.97873	0.97824	0.97775	0.97726	0.97678	0.97629	0.97580
0.040 SIN	0.70000	0.69982	0.69964	0.69947	0.69929	0.69911	0.69893	0.69875	0.69857	0.69839
0.040 COS	0.71414	0.71432	0.71449	0.71467	0.71484	0.71502	0.71519	0.71536	0.71554	0.71571
0.050 TAN	0.97531	0.97483	0.97434	0.97385	0.97336	0.97288	0.97239	0.97191	0.97142	0.97093
0.050 SIN	0.69821	0.69804	0.69786	0.69768	0.69750	0.69732	0.69714	0.69696	0.69678	0.69660
0.050 COS	0.71589	0.71606	0.71624	0.71641	0.71659	0.71676	0.71693	0.71711	0.71728	0.71746
0.060 TAN	0.97045	0.96996	0.96948	0.96900	0.96851	0.96803	0.96754	0.96706	0.96658	0.96609
0.060 SIN	0.69642	0.69624	0.69607	0.69589	0.69571	0.69553	0.69535	0.69517	0.69499	0.69481
0.060 COS	0.71763	0.71780	0.71798	0.71815	0.71833	0.71850	0.71867	0.71885	0.71902	0.71919
0.070 TAN	0.96561	0.96513	0.96465	0.96417	0.96368	0.96320	0.96272	0.96224	0.96176	0.96128
0.070 SIN	0.69463	0.69445	0.69427	0.69409	0.69391	0.69373	0.69355	0.69337	0.69319	0.69301
0.070 COS	0.71937	0.71954	0.71971	0.71989	0.72006	0.72023	0.72041	0.72058	0.72075	0.72093
0.080 TAN	0.96080	0.96032	0.95984	0.95936	0.95888	0.95840	0.95792	0.95745	0.95697	0.95649
0.080 SIN	0.69283	0.69265	0.69247	0.69229	0.69211	0.69193	0.69175	0.69157	0.69139	0.69121
0.080 COS	0.72110	0.72127	0.72144	0.72162	0.72179	0.72196	0.72214	0.72231	0.72248	0.72265
0.090 TAN	0.95601	0.95553	0.95506	0.95458	0.95410	0.95363	0.95315	0.95268	0.95220	0.95172
0.090 SIN	0.69103	0.69085	0.69067	0.69049	0.69031	0.69013	0.68995	0.68977	0.68959	0.68941
0.090 COS	0.72283	0.72300	0.72317	0.72334	0.72352	0.72369	0.72386	0.72403	0.72420	0.72438
0.100 TAN	0.95125	0.95077	0.95030	0.94983	0.94935	0.94888	0.94840	0.94793	0.94746	0.94698
0.100 SIN	0.68923	0.68904	0.68886	0.68868	0.68850	0.68832	0.68814	0.68796	0.68778	0.68760
0.100 COS	0.72455	0.72472	0.72489	0.72506	0.72523	0.72541	0.72558	0.72575	0.72592	0.72609
0.110 TAN	0.94651	0.94604	0.94557	0.94509	0.94462	0.94415	0.94368	0.94321	0.94274	0.94227
0.110 SIN	0.68742	0.68724	0.68705	0.68687	0.68669	0.68651	0.68633	0.68615	0.68597	0.68579
0.110 COS	0.72626	0.72643	0.72661	0.72678	0.72695	0.72712	0.72729	0.72746	0.72763	0.72780
0.120 TAN	0.94180	0.94133	0.94086	0.94039	0.93992	0.93945	0.93898	0.93851	0.93805	0.93758
0.120 SIN	0.68560	0.68542	0.68524	0.68506	0.68488	0.68470	0.68452	0.68433	0.68415	0.68397
0.120 COS	0.72797	0.72814	0.72832	0.72849	0.72866	0.72883	0.72900	0.72917	0.72934	0.72951
0.130 TAN	0.93711	0.93664	0.93618	0.93571	0.93524	0.93478	0.93431	0.93384	0.93338	0.93291
0.130 SIN	0.68379	0.68361	0.68343	0.68324	0.68306	0.68288	0.68270	0.68252	0.68234	0.68215
0.130 COS	0.72968	0.72985	0.73002	0.73019	0.73036	0.73053	0.73070	0.73087	0.73104	0.73121
0.140 TAN	0.93245	0.93198	0.93152	0.93105	0.93059	0.93012	0.92966	0.92920	0.92873	0.92827
0.140 SIN	0.68197	0.68179	0.68161	0.68143	0.68124	0.68106	0.68088	0.68070	0.68052	0.68033
0.140 COS	0.73138	0.73155	0.73172	0.73189	0.73206	0.73223	0.73240	0.73256	0.73273	0.73290
0.150 TAN	0.92781	0.92735	0.92688	0.92642	0.92596	0.92550	0.92504	0.92458	0.92412	0.92366
0.150 SIN	0.68015	0.67997	0.67979	0.67960	0.67942	0.67924	0.67906	0.67887	0.67869	0.67851
0.150 COS	0.73307	0.73324	0.73341	0.73358	0.73375	0.73392	0.73409	0.73425	0.73442	0.73459
0.160 TAN	0.92319	0.92273	0.92228	0.92182	0.92136	0.92090	0.92044	0.91998	0.91952	0.91906
0.160 SIN	0.67833	0.67814	0.67796	0.67778	0.67760	0.67741	0.67723	0.67705	0.67687	0.67668
0.160 COS	0.73476	0.73493	0.73510	0.73527	0.73543	0.73560	0.73577	0.73594	0.73611	0.73627
0.170 TAN	0.91861	0.91815	0.91769	0.91723	0.91678	0.91632	0.91586	0.91541	0.91495	0.91450
0.170 SIN	0.67650	0.67632	0.67613	0.67595	0.67577	0.67559	0.67540	0.67522	0.67504	0.67485
0.170 COS	0.73644	0.73661	0.73678	0.73695	0.73711	0.73728	0.73745	0.73762	0.73778	0.73795
0.180 TAN	0.91404	0.91359	0.91313	0.91268	0.91222	0.91177	0.91132	0.91086	0.91041	0.90996
0.180 SIN	0.67467	0.67449	0.67431	0.67412	0.67394	0.67376	0.67357	0.67339	0.67321	0.67302
0.180 COS	0.73812	0.73829	0.73845	0.73862	0.73879	0.73895	0.73912	0.73929	0.73946	0.73962
0.190 TAN	0.90950	0.90905	0.90860	0.90815	0.90769	0.90724	0.90679	0.90634	0.90589	0.90544
0.190 SIN	0.67284	0.67266	0.67247	0.67229	0.67211	0.67192	0.67174	0.67156	0.67137	0.67119
0.190 COS	0.73979	0.73996	0.74012	0.74029	0.74045	0.74062	0.74079	0.74095	0.74112	0.74129

TABLE 8.

A-B /C	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.200 TAN	0.90499	0.90454	0.90409	0.90364	0.90319	0.90274	0.90229	0.90184	0.90139	0.90095
SIN	0.67101	0.67082	0.67064	0.67045	0.67027	0.67009	0.66990	0.66972	0.66954	0.66935
COS	0.74145	0.74162	0.74178	0.74195	0.74212	0.74228	0.74245	0.74261	0.74278	0.74294
0.210 TAN	0.90050	0.90005	0.89960	0.89916	0.89871	0.89826	0.89782	0.89737	0.89692	0.89648
SIN	0.66917	0.66899	0.66880	0.66862	0.66843	0.66825	0.66807	0.66788	0.66770	0.66751
COS	0.74311	0.74328	0.74344	0.74361	0.74377	0.74394	0.74410	0.74427	0.74443	0.74460
0.220 TAN	0.89603	0.89559	0.89514	0.89470	0.89425	0.89381	0.89336	0.89292	0.89248	0.89203
SIN	0.66733	0.66715	0.66696	0.66678	0.66659	0.66641	0.66623	0.66604	0.66586	0.66567
COS	0.74476	0.74493	0.74509	0.74526	0.74542	0.74559	0.74575	0.74591	0.74608	0.74624
0.230 TAN	0.89159	0.89115	0.89071	0.89026	0.88982	0.88938	0.88894	0.88850	0.88806	0.88761
SIN	0.66549	0.66531	0.66512	0.66494	0.66475	0.66457	0.66438	0.66420	0.66402	0.66383
COS	0.74641	0.74657	0.74674	0.74690	0.74706	0.74723	0.74739	0.74755	0.74772	0.74788
0.240 TAN	0.88717	0.88673	0.88629	0.88585	0.88541	0.88498	0.88454	0.88410	0.88366	0.88322
SIN	0.66365	0.66346	0.66328	0.66309	0.66291	0.66273	0.66254	0.66236	0.66217	0.66199
COS	0.74805	0.74821	0.74837	0.74854	0.74870	0.74886	0.74903	0.74919	0.74935	0.74952
0.250 TAN	0.88278	0.88234	0.88191	0.88147	0.88103	0.88060	0.88016	0.87972	0.87929	0.87885
SIN	0.66180	0.66162	0.66143	0.66125	0.66106	0.66088	0.66070	0.66051	0.66033	0.66014
COS	0.74968	0.74984	0.75000	0.75017	0.75033	0.75049	0.75065	0.75082	0.75098	0.75114
0.260 TAN	0.87841	0.87798	0.87754	0.87711	0.87667	0.87624	0.87581	0.87537	0.87494	0.87450
SIN	0.65996	0.65977	0.65959	0.65940	0.65922	0.65903	0.65885	0.65866	0.65848	0.65829
COS	0.75130	0.75147	0.75163	0.75179	0.75195	0.75211	0.75228	0.75244	0.75260	0.75276
0.270 TAN	0.87407	0.87364	0.87321	0.87277	0.87234	0.87191	0.87148	0.87105	0.87061	0.87018
SIN	0.65811	0.65792	0.65774	0.65755	0.65737	0.65718	0.65700	0.65681	0.65663	0.65644
COS	0.75292	0.75308	0.75325	0.75341	0.75357	0.75373	0.75389	0.75405	0.75421	0.75437
0.280 TAN	0.86975	0.86932	0.86889	0.86846	0.86803	0.86760	0.86717	0.86674	0.86631	0.86589
SIN	0.65626	0.65607	0.65589	0.65570	0.65552	0.65533	0.65515	0.65496	0.65478	0.65459
COS	0.75454	0.75470	0.75486	0.75502	0.75518	0.75534	0.75550	0.75566	0.75582	0.75598
0.290 TAN	0.86546	0.86503	0.86460	0.86417	0.86375	0.86332	0.86289	0.86247	0.86204	0.86161
SIN	0.65441	0.65422	0.65404	0.65385	0.65367	0.65348	0.65330	0.65311	0.65293	0.65274
COS	0.75614	0.75630	0.75646	0.75662	0.75678	0.75694	0.75710	0.75726	0.75742	0.75758
0.300 TAN	0.86119	0.86076	0.86034	0.85991	0.85949	0.85906	0.85864	0.85821	0.85779	0.85736
SIN	0.65256	0.65237	0.65219	0.65200	0.65182	0.65163	0.65144	0.65126	0.65107	0.65089
COS	0.75774	0.75790	0.75806	0.75822	0.75838	0.75854	0.75870	0.75886	0.75901	0.75917
0.310 TAN	0.85694	0.85652	0.85609	0.85567	0.85525	0.85483	0.85441	0.85398	0.85356	0.85314
SIN	0.65070	0.65052	0.65033	0.65015	0.64996	0.64978	0.64959	0.64941	0.64922	0.64903
COS	0.75933	0.75949	0.75965	0.75981	0.75997	0.76013	0.76028	0.76044	0.76060	0.76076
0.320 TAN	0.85272	0.85230	0.85188	0.85146	0.85104	0.85062	0.85020	0.84978	0.84936	0.84894
SIN	0.64885	0.64866	0.64848	0.64829	0.64811	0.64792	0.64774	0.64755	0.64736	0.64718
COS	0.76092	0.76108	0.76123	0.76139	0.76155	0.76171	0.76187	0.76202	0.76218	0.76234
0.330 TAN	0.84852	0.84810	0.84768	0.84727	0.84685	0.84643	0.84601	0.84560	0.84518	0.84476
SIN	0.64699	0.64681	0.64662	0.64644	0.64625	0.64607	0.64588	0.64569	0.64551	0.64532
COS	0.76250	0.76265	0.76281	0.76297	0.76312	0.76328	0.76344	0.76360	0.76375	0.76391
0.340 TAN	0.84435	0.84393	0.84352	0.84310	0.84268	0.84227	0.84185	0.84144	0.84103	0.84061
SIN	0.64514	0.64495	0.64477	0.64458	0.64439	0.64421	0.64402	0.64384	0.64365	0.64347
COS	0.76407	0.76422	0.76438	0.76454	0.76469	0.76485	0.76501	0.76516	0.76532	0.76547
0.350 TAN	0.84020	0.83978	0.83937	0.83896	0.83854	0.83813	0.83772	0.83731	0.83689	0.83648
SIN	0.64328	0.64309	0.64291	0.64272	0.64254	0.64235	0.64217	0.64198	0.64179	0.64161
COS	0.76563	0.76579	0.76594	0.76610	0.76625	0.76641	0.76657	0.76672	0.76688	0.76703
0.360 TAN	0.83607	0.83566	0.83525	0.83484	0.83443	0.83402	0.83361	0.83320	0.83279	0.83238
SIN	0.64142	0.64124	0.64105	0.64087	0.64068	0.64049	0.64031	0.64012	0.63994	0.63975
COS	0.76719	0.76734	0.76750	0.76765	0.76781	0.76796	0.76812	0.76827	0.76843	0.76858
0.370 TAN	0.83197	0.83156	0.83115	0.83074	0.83033	0.82993	0.82952	0.82911	0.82870	0.82830
SIN	0.63957	0.63938	0.63919	0.63901	0.63882	0.63864	0.63845	0.63826	0.63808	0.63789
COS	0.76874	0.76889	0.76905	0.76920	0.76935	0.76951	0.76966	0.76982	0.76997	0.77013
0.380 TAN	0.82789	0.82748	0.82708	0.82667	0.82627	0.82586	0.82545	0.82505	0.82464	0.82424
SIN	0.63771	0.63752	0.63733	0.63715	0.63696	0.63678	0.63659	0.63641	0.63622	0.63603
COS	0.77028	0.77043	0.77059	0.77074	0.77089	0.77105	0.77120	0.77135	0.77151	0.77166
0.390 TAN	0.82384	0.82343	0.82303	0.82262	0.82222	0.82182	0.82141	0.82101	0.82061	0.82021
SIN	0.63585	0.63566	0.63548	0.63529	0.63510	0.63492	0.63473	0.63455	0.63436	0.63417
COS	0.77181	0.77197	0.77212	0.77227	0.77243	0.77258	0.77273	0.77288	0.77304	0.77319

TABLE 9.

A-B / C	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.400 TAN	0.81980	0.81940	0.81900	0.81860	0.81820	0.81780	0.81740	0.81700	0.81660	0.81620
SIN	0.63399	0.63380	0.63362	0.63343	0.63325	0.63306	0.63287	0.63269	0.63250	0.63232
COS	0.77334	0.77349	0.77365	0.77380	0.77395	0.77410	0.77426	0.77441	0.77456	0.77471
0.410 TAN	0.81580	0.81540	0.81500	0.81460	0.81420	0.81380	0.81340	0.81301	0.81261	0.81221
SIN	0.63213	0.63194	0.63176	0.63157	0.63139	0.63120	0.63101	0.63083	0.63064	0.63045
COS	0.77486	0.77501	0.77517	0.77532	0.77547	0.77562	0.77577	0.77592	0.77607	0.77622
0.420 TAN	0.81181	0.81142	0.81102	0.81062	0.81023	0.80983	0.80943	0.80904	0.80864	0.80825
SIN	0.63027	0.63009	0.62990	0.62971	0.62953	0.62934	0.62916	0.62897	0.62878	0.62860
COS	0.77638	0.77653	0.77668	0.77683	0.77698	0.77713	0.77728	0.77743	0.77758	0.77773
0.430 TAN	0.80785	0.80746	0.80706	0.80667	0.80627	0.80588	0.80549	0.80509	0.80470	0.80431
SIN	0.62841	0.62823	0.62804	0.62785	0.62767	0.62748	0.62730	0.62711	0.62693	0.62674
COS	0.77788	0.77803	0.77818	0.77833	0.77848	0.77863	0.77878	0.77893	0.77908	0.77923
0.440 TAN	0.80391	0.80352	0.80313	0.80274	0.80235	0.80195	0.80156	0.80117	0.80078	0.80039
SIN	0.62655	0.62637	0.62618	0.62600	0.62581	0.62562	0.62544	0.62525	0.62507	0.62488
COS	0.77938	0.77953	0.77968	0.77983	0.77998	0.78012	0.78027	0.78042	0.78057	0.78072
0.450 TAN	0.80000	0.79961	0.79922	0.79883	0.79844	0.79805	0.79766	0.79727	0.79689	0.79650
SIN	0.62470	0.62451	0.62432	0.62414	0.62395	0.62377	0.62358	0.62339	0.62321	0.62302
COS	0.78087	0.78102	0.78117	0.78131	0.78146	0.78161	0.78176	0.78191	0.78206	0.78220
0.460 TAN	0.79611	0.79572	0.79533	0.79495	0.79456	0.79417	0.79379	0.79340	0.79301	0.79263
SIN	0.62284	0.62265	0.62247	0.62228	0.62209	0.62191	0.62172	0.62154	0.62135	0.62117
COS	0.78235	0.78250	0.78265	0.78279	0.78294	0.78309	0.78324	0.78338	0.78353	0.78368
0.470 TAN	0.79224	0.79186	0.79147	0.79109	0.79070	0.79032	0.78993	0.78955	0.78916	0.78878
SIN	0.62098	0.62079	0.62061	0.62042	0.62024	0.62005	0.61987	0.61968	0.61949	0.61931
COS	0.78383	0.78397	0.78412	0.78427	0.78441	0.78456	0.78471	0.78485	0.78500	0.78515
0.480 TAN	0.78840	0.78801	0.78763	0.78725	0.78687	0.78648	0.78610	0.78572	0.78534	0.78496
SIN	0.61912	0.61894	0.61875	0.61857	0.61838	0.61820	0.61801	0.61782	0.61764	0.61745
COS	0.78529	0.78544	0.78559	0.78573	0.78588	0.78602	0.78617	0.78632	0.78646	0.78661
0.490 TAN	0.78458	0.78419	0.78381	0.78343	0.78305	0.78267	0.78229	0.78191	0.78153	0.78116
SIN	0.61727	0.61708	0.61690	0.61671	0.61653	0.61634	0.61615	0.61597	0.61578	0.61560
COS	0.78675	0.78690	0.78704	0.78719	0.78734	0.78748	0.78763	0.78777	0.78792	0.78806
0.500 TAN	0.78078	0.78040	0.78002	0.77964	0.77926	0.77889	0.77851	0.77813	0.77775	0.77738
SIN	0.61541	0.61523	0.61504	0.61486	0.61467	0.61449	0.61430	0.61411	0.61393	0.61374
COS	0.78821	0.78835	0.78849	0.78864	0.78878	0.78893	0.78907	0.78922	0.78936	0.78951
0.510 TAN	0.77700	0.77662	0.77625	0.77587	0.77550	0.77512	0.77475	0.77437	0.77400	0.77362
SIN	0.61356	0.61337	0.61319	0.61300	0.61282	0.61263	0.61245	0.61226	0.61208	0.61189
COS	0.78965	0.78979	0.78994	0.79008	0.79022	0.79037	0.79051	0.79066	0.79080	0.79094
0.520 TAN	0.77325	0.77287	0.77250	0.77213	0.77175	0.77138	0.77101	0.77063	0.77026	0.76989
SIN	0.61171	0.61152	0.61133	0.61115	0.61096	0.61078	0.61059	0.61041	0.61022	0.61004
COS	0.79109	0.79123	0.79137	0.79152	0.79166	0.79180	0.79194	0.79209	0.79223	0.79237
0.530 TAN	0.76952	0.76915	0.76877	0.76840	0.76803	0.76766	0.76729	0.76692	0.76655	0.76618
SIN	0.60985	0.60967	0.60948	0.60930	0.60911	0.60893	0.60874	0.60856	0.60837	0.60819
COS	0.79251	0.79266	0.79280	0.79294	0.79308	0.79323	0.79337	0.79351	0.79365	0.79379
0.540 TAN	0.76581	0.76544	0.76507	0.76470	0.76433	0.76396	0.76360	0.76323	0.76286	0.76249
SIN	0.60800	0.60782	0.60763	0.60745	0.60726	0.60708	0.60689	0.60671	0.60652	0.60634
COS	0.79393	0.79408	0.79422	0.79436	0.79450	0.79464	0.79478	0.79492	0.79507	0.79521
0.550 TAN	0.76212	0.76176	0.76139	0.76102	0.76066	0.76029	0.75992	0.75956	0.75919	0.75883
SIN	0.60615	0.60597	0.60578	0.60560	0.60541	0.60523	0.60504	0.60486	0.60468	0.60449
COS	0.79535	0.79549	0.79563	0.79577	0.79591	0.79605	0.79619	0.79633	0.79647	0.79661
0.560 TAN	0.75846	0.75810	0.75773	0.75737	0.75700	0.75664	0.75627	0.75591	0.75555	0.75518
SIN	0.60431	0.60412	0.60394	0.60375	0.60357	0.60338	0.60320	0.60301	0.60283	0.60264
COS	0.79675	0.79689	0.79703	0.79717	0.79731	0.79745	0.79759	0.79773	0.79787	0.79801
0.570 TAN	0.75482	0.75446	0.75409	0.75373	0.75337	0.75301	0.75265	0.75228	0.75192	0.75156
SIN	0.60246	0.60227	0.60209	0.60191	0.60172	0.60154	0.60135	0.60117	0.60098	0.60080
COS	0.79815	0.79829	0.79843	0.79857	0.79871	0.79885	0.79898	0.79912	0.79926	0.79940
0.580 TAN	0.75120	0.75084	0.75048	0.75012	0.74976	0.74940	0.74904	0.74868	0.74832	0.74796
SIN	0.60061	0.60043	0.60025	0.60006	0.59988	0.59969	0.59951	0.59932	0.59914	0.59896
COS	0.79954	0.79968	0.79982	0.79995	0.80009	0.80023	0.80037	0.80051	0.80064	0.80078
0.590 TAN	0.74761	0.74725	0.74689	0.74653	0.74617	0.74582	0.74546	0.74510	0.74474	0.74439
SIN	0.59877	0.59859	0.59840	0.59822	0.59804	0.59785	0.59767	0.59748	0.59730	0.59711
COS	0.80092	0.80106	0.80119	0.80133	0.80147	0.80161	0.80174	0.80188	0.80202	0.80216

TABLE 10.

A-B /C	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.600 TAN	0.74403	0.74367	0.74332	0.74296	0.74261	0.74225	0.74190	0.74154	0.74119	0.74083
SIN	0.59693	0.59675	0.59656	0.59638	0.59619	0.59601	0.59583	0.59564	0.59546	0.59528
COS	0.80229	0.80243	0.80257	0.80270	0.80284	0.80298	0.80311	0.80325	0.80339	0.80352
0.610 TAN	0.74048	0.74012	0.73977	0.73942	0.73906	0.73871	0.73836	0.73801	0.73765	0.73730
SIN	0.59509	0.59491	0.59472	0.59454	0.59436	0.59417	0.59399	0.59381	0.59362	0.59344
COS	0.80366	0.80379	0.80393	0.80407	0.80420	0.80434	0.80447	0.80461	0.80474	0.80488
0.620 TAN	0.73695	0.73660	0.73624	0.73589	0.73554	0.73519	0.73484	0.73449	0.73414	0.73379
SIN	0.59325	0.59307	0.59289	0.59270	0.59252	0.59234	0.59215	0.59197	0.59179	0.59160
COS	0.80501	0.80515	0.80529	0.80542	0.80556	0.80569	0.80583	0.80596	0.80609	0.80623
0.630 TAN	0.73344	0.73309	0.73274	0.73239	0.73204	0.73169	0.73135	0.73100	0.73065	0.73030
SIN	0.59142	0.59124	0.59105	0.59087	0.59069	0.59050	0.59032	0.59014	0.58995	0.58977
COS	0.80636	0.80650	0.80663	0.80677	0.80690	0.80704	0.80717	0.80730	0.80744	0.80757
0.640 TAN	0.72995	0.72961	0.72926	0.72891	0.72856	0.72822	0.72787	0.72752	0.72718	0.72683
SIN	0.58959	0.58940	0.58922	0.58904	0.58885	0.58867	0.58849	0.58831	0.58812	0.58794
COS	0.80771	0.80784	0.80797	0.80811	0.80824	0.80837	0.80851	0.80864	0.80877	0.80891
0.650 TAN	0.72649	0.72614	0.72580	0.72545	0.72511	0.72476	0.72442	0.72407	0.72373	0.72339
SIN	0.58776	0.58757	0.58739	0.58721	0.58702	0.58684	0.58666	0.58648	0.58629	0.58611
COS	0.80904	0.80917	0.80930	0.80944	0.80957	0.80970	0.80983	0.80997	0.81010	0.81023
0.660 TAN	0.72304	0.72270	0.72236	0.72201	0.72167	0.72133	0.72099	0.72065	0.72030	0.71996
SIN	0.58593	0.58575	0.58556	0.58538	0.58520	0.58501	0.58483	0.58465	0.58447	0.58428
COS	0.81036	0.81050	0.81063	0.81076	0.81089	0.81102	0.81115	0.81129	0.81142	0.81155
0.670 TAN	0.71962	0.71928	0.71894	0.71860	0.71826	0.71792	0.71758	0.71724	0.71690	0.71656
SIN	0.58410	0.58392	0.58374	0.58356	0.58337	0.58319	0.58301	0.58283	0.58264	0.58246
COS	0.81168	0.81181	0.81194	0.81207	0.81220	0.81234	0.81247	0.81260	0.81273	0.81286
0.680 TAN	0.71622	0.71588	0.71554	0.71520	0.71487	0.71453	0.71419	0.71385	0.71351	0.71318
SIN	0.58228	0.58210	0.58191	0.58173	0.58155	0.58137	0.58119	0.58100	0.58082	0.58064
COS	0.81299	0.81312	0.81325	0.81338	0.81351	0.81364	0.81377	0.81390	0.81403	0.81416
0.690 TAN	0.71284	0.71250	0.71217	0.71183	0.71149	0.71116	0.71082	0.71049	0.71015	0.70982
SIN	0.58046	0.58028	0.58009	0.57991	0.57973	0.57955	0.57937	0.57919	0.57900	0.57882
COS	0.81429	0.81442	0.81455	0.81468	0.81481	0.81494	0.81507	0.81520	0.81532	0.81545
0.700 TAN	0.70948	0.70915	0.70881	0.70848	0.70814	0.70781	0.70748	0.70714	0.70681	0.70648
SIN	0.57864	0.57846	0.57828	0.57810	0.57791	0.57773	0.57755	0.57737	0.57719	0.57701
COS	0.81558	0.81571	0.81584	0.81597	0.81610	0.81623	0.81635	0.81648	0.81661	0.81674
0.710 TAN	0.70614	0.70581	0.70548	0.70515	0.70481	0.70448	0.70415	0.70382	0.70349	0.70316
SIN	0.57683	0.57664	0.57646	0.57628	0.57610	0.57592	0.57574	0.57556	0.57538	0.57519
COS	0.81687	0.81700	0.81712	0.81725	0.81738	0.81751	0.81763	0.81776	0.81789	0.81802
0.720 TAN	0.70283	0.70250	0.70217	0.70184	0.70151	0.70118	0.70085	0.70052	0.70019	0.69986
SIN	0.57501	0.57483	0.57465	0.57447	0.57429	0.57411	0.57393	0.57375	0.57357	0.57339
COS	0.81814	0.81827	0.81840	0.81853	0.81865	0.81878	0.81891	0.81903	0.81916	0.81929
0.730 TAN	0.69953	0.69920	0.69887	0.69855	0.69822	0.69789	0.69756	0.69724	0.69691	0.69658
SIN	0.57320	0.57302	0.57284	0.57266	0.57248	0.57230	0.57212	0.57194	0.57176	0.57158
COS	0.81941	0.81954	0.81967	0.81979	0.81992	0.82004	0.82017	0.82030	0.82042	0.82055
0.740 TAN	0.69626	0.69593	0.69560	0.69528	0.69495	0.69463	0.69430	0.69398	0.69365	0.69333
SIN	0.57140	0.57122	0.57104	0.57086	0.57068	0.57050	0.57032	0.57014	0.56996	0.56978
COS	0.82067	0.82080	0.82092	0.82105	0.82117	0.82130	0.82143	0.82155	0.82168	0.82180
0.750 TAN	0.69300	0.69268	0.69235	0.69203	0.69170	0.69138	0.69106	0.69074	0.69041	0.69009
SIN	0.56960	0.56942	0.56923	0.56905	0.56887	0.56869	0.56851	0.56833	0.56816	0.56798
COS	0.82193	0.82205	0.82217	0.82230	0.82242	0.82255	0.82267	0.82280	0.82292	0.82305
0.760 TAN	0.68977	0.68944	0.68912	0.68880	0.68848	0.68816	0.68784	0.68752	0.68719	0.68687
SIN	0.56780	0.56762	0.56744	0.56726	0.56708	0.56690	0.56672	0.56654	0.56636	0.56618
COS	0.82317	0.82329	0.82342	0.82354	0.82367	0.82379	0.82391	0.82404	0.82416	0.82428
0.770 TAN	0.68655	0.68623	0.68591	0.68559	0.68527	0.68495	0.68463	0.68432	0.68400	0.68368
SIN	0.56600	0.56582	0.56564	0.56546	0.56528	0.56510	0.56492	0.56474	0.56456	0.56438
COS	0.82441	0.82453	0.82465	0.82478	0.82490	0.82502	0.82514	0.82527	0.82539	0.82551
0.780 TAN	0.68336	0.68304	0.68272	0.68241	0.68209	0.68177	0.68145	0.68114	0.68082	0.68050
SIN	0.56421	0.56403	0.56385	0.56367	0.56349	0.56331	0.56313	0.56295	0.56277	0.56259
COS	0.82563	0.82576	0.82588	0.82600	0.82612	0.82625	0.82637	0.82649	0.82661	0.82673
0.790 TAN	0.68019	0.67987	0.67955	0.67924	0.67892	0.67861	0.67829	0.67798	0.67766	0.67735
SIN	0.56242	0.56224	0.56206	0.56188	0.56170	0.56152	0.56134	0.56116	0.56099	0.56081
COS	0.82685	0.82698	0.82710	0.82722	0.82734	0.82746	0.82758	0.82770	0.82783	0.82795

TABLE 11.

* A-B / C	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.800 TAN	0.67703	0.67672	0.67641	0.67609	0.67578	0.67546	0.67515	0.67484	0.67453	0.67421
SIN	0.56063	0.56045	0.56027	0.56009	0.55992	0.55974	0.55956	0.55938	0.55920	0.55902
COS	0.82807	0.82819	0.82831	0.82843	0.82855	0.82867	0.82879	0.82891	0.82903	0.82915
0.810 TAN	0.67390	0.67359	0.67328	0.67296	0.67265	0.67234	0.67203	0.67172	0.67141	0.67110
SIN	0.55885	0.55867	0.55849	0.55831	0.55813	0.55796	0.55778	0.55760	0.55742	0.55724
COS	0.82927	0.82939	0.82951	0.82963	0.82975	0.82987	0.82999	0.83011	0.83023	0.83035
0.820 TAN	0.67079	0.67048	0.67017	0.66986	0.66955	0.66924	0.66893	0.66862	0.66831	0.66800
SIN	0.55707	0.55689	0.55671	0.55653	0.55636	0.55618	0.55600	0.55582	0.55565	0.55547
COS	0.83047	0.83059	0.83071	0.83082	0.83094	0.83106	0.83118	0.83130	0.83142	0.83154
0.830 TAN	0.66769	0.66739	0.66708	0.66677	0.66646	0.66615	0.66585	0.66554	0.66523	0.66493
SIN	0.55529	0.55511	0.55494	0.55476	0.55458	0.55441	0.55423	0.55405	0.55387	0.55370
COS	0.83166	0.83177	0.83189	0.83201	0.83213	0.83225	0.83236	0.83248	0.83260	0.83272
0.840 TAN	0.66462	0.66431	0.66401	0.66370	0.66340	0.66309	0.66279	0.66248	0.66218	0.66187
SIN	0.55352	0.55334	0.55317	0.55299	0.55281	0.55264	0.55246	0.55228	0.55211	0.55193
COS	0.83284	0.83295	0.83307	0.83319	0.83331	0.83342	0.83354	0.83366	0.83377	0.83389
0.850 TAN	0.66157	0.66126	0.66096	0.66065	0.66035	0.66005	0.65974	0.65944	0.65914	0.65883
SIN	0.55175	0.55158	0.55140	0.55122	0.55105	0.55087	0.55069	0.55052	0.55034	0.55016
COS	0.83401	0.83413	0.83424	0.83436	0.83448	0.83459	0.83471	0.83482	0.83494	0.83506
0.860 TAN	0.65853	0.65823	0.65793	0.65763	0.65732	0.65702	0.65672	0.65642	0.65612	0.65582
SIN	0.54999	0.54981	0.54964	0.54946	0.54928	0.54911	0.54893	0.54876	0.54858	0.54840
COS	0.83517	0.83529	0.83540	0.83552	0.83564	0.83575	0.83587	0.83598	0.83610	0.83621
0.870 TAN	0.65552	0.65522	0.65492	0.65462	0.65432	0.65402	0.65372	0.65342	0.65312	0.65282
SIN	0.54823	0.54805	0.54788	0.54770	0.54752	0.54735	0.54717	0.54700	0.54682	0.54665
COS	0.83633	0.83644	0.83656	0.83667	0.83679	0.83690	0.83702	0.83713	0.83725	0.83736
0.880 TAN	0.65252	0.65222	0.65192	0.65163	0.65133	0.65103	0.65073	0.65044	0.65014	0.64984
SIN	0.54647	0.54630	0.54612	0.54595	0.54577	0.54560	0.54542	0.54524	0.54507	0.54489
COS	0.83748	0.83759	0.83771	0.83782	0.83793	0.83805	0.83816	0.83828	0.83839	0.83850
0.890 TAN	0.64954	0.64925	0.64895	0.64865	0.64836	0.64806	0.64777	0.64747	0.64718	0.64688
SIN	0.54472	0.54454	0.54437	0.54419	0.54402	0.54385	0.54367	0.54350	0.54332	0.54315
COS	0.83862	0.83873	0.83885	0.83896	0.83907	0.83919	0.83930	0.83941	0.83953	0.83964
0.900 TAN	0.64659	0.64629	0.64600	0.64570	0.64541	0.64511	0.64482	0.64453	0.64423	0.64394
SIN	0.54297	0.54280	0.54262	0.54245	0.54227	0.54210	0.54192	0.54175	0.54158	0.54140
COS	0.83975	0.83986	0.83998	0.84009	0.84020	0.84031	0.84043	0.84054	0.84065	0.84076
0.910 TAN	0.64365	0.64335	0.64306	0.64277	0.64248	0.64219	0.64189	0.64160	0.64131	0.64102
SIN	0.54123	0.54105	0.54088	0.54071	0.54053	0.54036	0.54018	0.54001	0.53984	0.53966
COS	0.84088	0.84099	0.84110	0.84121	0.84132	0.84144	0.84155	0.84166	0.84177	0.84188
0.920 TAN	0.64073	0.64044	0.64015	0.63986	0.63957	0.63927	0.63898	0.63870	0.63841	0.63812
SIN	0.53949	0.53931	0.53914	0.53897	0.53879	0.53862	0.53845	0.53827	0.53810	0.53793
COS	0.84199	0.84210	0.84222	0.84233	0.84244	0.84255	0.84266	0.84277	0.84288	0.84299
0.930 TAN	0.63783	0.63754	0.63725	0.63696	0.63667	0.63638	0.63610	0.63581	0.63552	0.63523
SIN	0.53775	0.53758	0.53741	0.53723	0.53706	0.53689	0.53671	0.53654	0.53637	0.53620
COS	0.84310	0.84321	0.84332	0.84343	0.84354	0.84365	0.84376	0.84387	0.84398	0.84409
0.940 TAN	0.63494	0.63466	0.63437	0.63408	0.63380	0.63351	0.63322	0.63294	0.63265	0.63237
SIN	0.53602	0.53585	0.53568	0.53550	0.53533	0.53516	0.53499	0.53481	0.53464	0.53447
COS	0.84420	0.84431	0.84442	0.84453	0.84464	0.84475	0.84486	0.84497	0.84508	0.84519
0.950 TAN	0.63208	0.63179	0.63151	0.63122	0.63094	0.63066	0.63037	0.63009	0.62980	0.62952
SIN	0.53430	0.53412	0.53395	0.53378	0.53361	0.53343	0.53326	0.53309	0.53292	0.53275
COS	0.84530	0.84541	0.84552	0.84562	0.84573	0.84584	0.84595	0.84606	0.84617	0.84628
0.960 TAN	0.62923	0.62895	0.62867	0.62838	0.62810	0.62782	0.62754	0.62725	0.62697	0.62669
SIN	0.53257	0.53240	0.53223	0.53206	0.53189	0.53171	0.53154	0.53137	0.53120	0.53103
COS	0.84638	0.84649	0.84660	0.84671	0.84682	0.84692	0.84703	0.84714	0.84725	0.84735
0.970 TAN	0.62641	0.62613	0.62584	0.62556	0.62528	0.62500	0.62472	0.62444	0.62416	0.62388
SIN	0.53086	0.53068	0.53051	0.53034	0.53017	0.53000	0.52983	0.52966	0.52949	0.52931
COS	0.84746	0.84757	0.84768	0.84778	0.84789	0.84800	0.84811	0.84821	0.84832	0.84843
0.980 TAN	0.62360	0.62332	0.62304	0.62276	0.62248	0.62220	0.62192	0.62164	0.62136	0.62109
SIN	0.52914	0.52897	0.52880	0.52863	0.52846	0.52829	0.52812	0.52795	0.52778	0.52761
COS	0.84853	0.84864	0.84875	0.84885	0.84896	0.84906	0.84917	0.84928	0.84938	0.84949
0.990 TAN	0.62081	0.62053	0.62025	0.61997	0.61970	0.61942	0.61914	0.61886	0.61859	0.61831
SIN	0.52744	0.52726	0.52709	0.52692	0.52675	0.52658	0.52641	0.52624	0.52607	0.52590
COS	0.84960	0.84970	0.84981	0.84991	0.85002	0.85012	0.85023	0.85033	0.85044	0.85055

TABLE 12.

A-B / C	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
1.000 TAN	0.61803	0.61776	0.61748	0.61721	0.61693	0.61666	0.61638	0.61610	0.61583	0.61555
SIN	0.52573	0.52556	0.52539	0.52522	0.52505	0.52488	0.52471	0.52454	0.52437	0.52420
COS	0.85065	0.85076	0.85086	0.85097	0.85107	0.85118	0.85128	0.85138	0.85149	0.85159
1.010 TAN	0.61528	0.61501	0.61473	0.61446	0.61418	0.61391	0.61364	0.61336	0.61309	0.61282
SIN	0.52403	0.52386	0.52369	0.52352	0.52335	0.52319	0.52302	0.52285	0.52268	0.52251
COS	0.85170	0.85180	0.85191	0.85201	0.85212	0.85222	0.85232	0.85243	0.85253	0.85263
1.020 TAN	0.61254	0.61227	0.61200	0.61173	0.61145	0.61118	0.61091	0.61064	0.61037	0.61009
SIN	0.52234	0.52217	0.52200	0.52183	0.52166	0.52149	0.52132	0.52116	0.52099	0.52082
COS	0.85274	0.85284	0.85295	0.85305	0.85315	0.85326	0.85336	0.85346	0.85356	0.85367
1.030 TAN	0.60982	0.60955	0.60928	0.60901	0.60874	0.60847	0.60820	0.60793	0.60766	0.60739
SIN	0.52065	0.52048	0.52031	0.52014	0.51997	0.51981	0.51964	0.51947	0.51930	0.51913
COS	0.85377	0.85387	0.85398	0.85408	0.85418	0.85428	0.85439	0.85449	0.85459	0.85469
1.040 TAN	0.60712	0.60685	0.60658	0.60631	0.60605	0.60578	0.60551	0.60524	0.60497	0.60470
SIN	0.51896	0.51880	0.51863	0.51846	0.51829	0.51812	0.51796	0.51779	0.51762	0.51745
COS	0.85480	0.85490	0.85500	0.85510	0.85520	0.85531	0.85541	0.85551	0.85561	0.85571
1.050 TAN	0.60444	0.60417	0.60390	0.60363	0.60337	0.60310	0.60283	0.60257	0.60230	0.60204
SIN	0.51728	0.51712	0.51695	0.51678	0.51661	0.51645	0.51628	0.51611	0.51594	0.51578
COS	0.85581	0.85591	0.85602	0.85612	0.85622	0.85632	0.85642	0.85652	0.85662	0.85672
1.060 TAN	0.60177	0.60150	0.60124	0.60097	0.60071	0.60044	0.60018	0.59991	0.59965	0.59938
SIN	0.51561	0.51544	0.51528	0.51511	0.51494	0.51477	0.51461	0.51444	0.51427	0.51411
COS	0.85682	0.85692	0.85702	0.85712	0.85723	0.85733	0.85743	0.85753	0.85763	0.85773
1.070 TAN	0.59912	0.59886	0.59859	0.59833	0.59806	0.59780	0.59754	0.59728	0.59701	0.59675
SIN	0.51394	0.51377	0.51361	0.51344	0.51327	0.51311	0.51294	0.51277	0.51261	0.51244
COS	0.85783	0.85793	0.85803	0.85813	0.85822	0.85832	0.85842	0.85852	0.85862	0.85872
1.080 TAN	0.59649	0.59622	0.59596	0.59570	0.59544	0.59518	0.59492	0.59465	0.59439	0.59413
SIN	0.51228	0.51211	0.51194	0.51178	0.51161	0.51145	0.51128	0.51111	0.51095	0.51078
COS	0.85882	0.85892	0.85902	0.85912	0.85922	0.85932	0.85941	0.85951	0.85961	0.85971
1.090 TAN	0.59387	0.59361	0.59335	0.59309	0.59283	0.59257	0.59231	0.59205	0.59179	0.59153
SIN	0.51062	0.51045	0.51028	0.51012	0.50995	0.50979	0.50962	0.50946	0.50929	0.50913
COS	0.85981	0.85991	0.86001	0.86010	0.86020	0.86030	0.86040	0.86050	0.86059	0.86069
1.100 TAN	0.59127	0.59101	0.59075	0.59050	0.59024	0.58998	0.58972	0.58946	0.58921	0.58895
SIN	0.50896	0.50880	0.50863	0.50847	0.50830	0.50814	0.50797	0.50781	0.50764	0.50748
COS	0.86079	0.86089	0.86098	0.86108	0.86118	0.86128	0.86137	0.86147	0.86157	0.86167
1.110 TAN	0.58869	0.58843	0.58818	0.58792	0.58766	0.58741	0.58715	0.58689	0.58664	0.58638
SIN	0.50731	0.50715	0.50698	0.50682	0.50665	0.50649	0.50632	0.50616	0.50600	0.50583
COS	0.86176	0.86186	0.86196	0.86205	0.86215	0.86225	0.86234	0.86244	0.86254	0.86263
1.120 TAN	0.58613	0.58587	0.58561	0.58536	0.58510	0.58485	0.58459	0.58434	0.58408	0.58383
SIN	0.50567	0.50550	0.50534	0.50517	0.50501	0.50485	0.50468	0.50452	0.50436	0.50419
COS	0.86273	0.86282	0.86292	0.86302	0.86311	0.86321	0.86330	0.86340	0.86350	0.86359
1.130 TAN	0.58358	0.58332	0.58307	0.58282	0.58256	0.58231	0.58206	0.58180	0.58155	0.58130
SIN	0.50403	0.50386	0.50370	0.50354	0.50337	0.50321	0.50305	0.50288	0.50272	0.50256
COS	0.86369	0.86378	0.86388	0.86397	0.86407	0.86416	0.86426	0.86435	0.86445	0.86454
1.140 TAN	0.58104	0.58079	0.58054	0.58029	0.58004	0.57978	0.57953	0.57928	0.57903	0.57878
SIN	0.50239	0.50223	0.50207	0.50190	0.50174	0.50158	0.50142	0.50125	0.50109	0.50093
COS	0.86464	0.86473	0.86483	0.86492	0.86502	0.86511	0.86521	0.86530	0.86540	0.86549
1.150 TAN	0.57853	0.57828	0.57803	0.57778	0.57753	0.57728	0.57703	0.57678	0.57653	0.57628
SIN	0.50076	0.50060	0.50044	0.50028	0.50011	0.49995	0.49979	0.49963	0.49947	0.49930
COS	0.86558	0.86568	0.86577	0.86587	0.86596	0.86605	0.86615	0.86624	0.86633	0.86643
1.160 TAN	0.57603	0.57578	0.57553	0.57528	0.57503	0.57479	0.57454	0.57429	0.57404	0.57379
SIN	0.49914	0.49898	0.49882	0.49866	0.49849	0.49833	0.49817	0.49801	0.49785	0.49768
COS	0.86652	0.86661	0.86671	0.86680	0.86689	0.86699	0.86708	0.86717	0.86727	0.86736
1.170 TAN	0.57355	0.57330	0.57305	0.57280	0.57256	0.57231	0.57206	0.57182	0.57157	0.57132
SIN	0.49752	0.49736	0.49720	0.49704	0.49688	0.49672	0.49655	0.49639	0.49623	0.49607
COS	0.86745	0.86754	0.86764	0.86773	0.86782	0.86791	0.86801	0.86810	0.86819	0.86828
1.180 TAN	0.57108	0.57083	0.57059	0.57034	0.57010	0.56985	0.56961	0.56936	0.56912	0.56887
SIN	0.49591	0.49575	0.49559	0.49543	0.49527	0.49511	0.49494	0.49478	0.49462	0.49446
COS	0.86837	0.86847	0.86856	0.86865	0.86874	0.86883	0.86892	0.86902	0.86911	0.86920
1.190 TAN	0.56863	0.56838	0.56814	0.56789	0.56765	0.56741	0.56716	0.56692	0.56668	0.56643
SIN	0.49430	0.49414	0.49398	0.49382	0.49366	0.49350	0.49334	0.49318	0.49302	0.49286
COS	0.86929	0.86938	0.86947	0.86956	0.86965	0.86975	0.86984	0.86993	0.87002	0.87011

WASHINGTON, October 3, 1957.