

SpiroChart 2.1

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USA

CHANGE THESE TO ANY VALUE**(POSITIVE, NEGATIVE, ZERO, INTEGERS, FRACTIONS, DECIMAL)**

-8	=q. Controls number of loops in completed pattern. A negative value causes the loops to turn clockwise.
1	=degree interval that points are plotted. Large prime numbers provide the thickest net. Small numbers provide the thinnest.
1.3	=r_o. Major radius. Indicates distance of the minor axis from center of the figure.
0.7	=r_1. Minor radius. Controls fluctuation in distance of points from center of figure.
0	=degrees figure rotated. Setting this value to -psi/q when phi = 0 will align the figure to be symmetric about the vertical axis.
0	=degrees points are moved through the figure. (Incrementally decreasing this number by the same amount as the figure rotation will cause the figure to spin.)
65	=phi. Degrees minor axis turned with respect to vertical. Add or subtract 180 to spin minor loops around major axis.
2	=phi multiplier. Nonzero values will cause minor axis to continue spinning around ray axis.
60	=psi. Angle of minor axis with respect to ray pointing out from center of chart (0 degrees as measured from vertical).
-7.5	=suggested value to rotate figure when phi=0. Adding or subtracting a multiple of this value will cause the figure to spin.

DO NOT	0.02 =plotting interval (radians)
CHANGE	0.00 =figure rotation (radians)
	0.00 =point rotation (radians)
	1.13 =phi (radians)
	1.05 =psi (radians)

Max				-0.6983	-0.6130	0.6020	-0.6119		-1.9887	-1.9887
Min				0.7000	0.6059	1.9976	0.6079		1.9887	1.9887
Theta (degrees)	Theta (radians)	Spin (radians)	PhiSpin (radians)					THETA (radians)		
				X1	Y1	X1r	Y1r		Xplot	Yplot
0	0.00	0.00	1.13	0.7000	0.0000	1.6500	0.6062	0.00	1.6500	0.6062
1	0.02	-0.14	0.86	0.6932	-0.0639	1.7019	0.5684	0.02	1.6918	0.5980
2	0.03	-0.28	0.58	0.6729	-0.1618	1.7766	0.5018	0.03	1.7580	0.5635
3	0.05	-0.42	0.30	0.6395	-0.2723	1.8555	0.4177	0.05	1.8311	0.5142
4	0.07	-0.56	0.02	0.5936	-0.3709	1.9180	0.3287	0.07	1.8904	0.4617
5	0.09	-0.70	-0.26	0.5362	-0.4346	1.9445	0.2471	0.09	1.9156	0.4156
6	0.10	-0.84	-0.54	0.4684	-0.4459	1.9204	0.1827	0.10	1.8907	0.3824
7	0.12	-0.98	-0.82	0.3914	-0.3958	1.8385	0.1411	0.12	1.8076	0.3641
8	0.14	-1.12	-1.10	0.3069	-0.2856	1.7008	0.1229	0.14	1.6671	0.3584
9	0.16	-1.26	-1.38	0.2163	-0.1270	1.5182	0.1238	0.16	1.4801	0.3598
10	0.17	-1.40	-1.66	0.1216	0.0601	1.3087	0.1353	0.17	1.2654	0.3605
11	0.19	-1.54	-1.94	0.0244	0.2507	1.0951	0.1465	0.19	1.0470	0.3528
12	0.21	-1.68	-2.22	-0.0732	0.4190	0.9006	0.1461	0.21	0.8505	0.3302
13	0.23	-1.82	-2.50	-0.1693	0.5424	0.7456	0.1246	0.23	0.6984	0.2891

14	0.24	-1.95	-2.78	-0.2622	0.6059	0.6441	0.0759	0.24	0.6067	0.2294
15	0.26	-2.09	-3.05	-0.3500	0.6039	0.6020	-0.0012	0.26	0.5818	0.1547
16	0.28	-2.23	-3.33	-0.4310	0.5415	0.6156	-0.1025	0.28	0.6200	0.0712
17	0.30	-2.37	-3.61	-0.5035	0.4333	0.6730	-0.2194	0.30	0.7078	-0.0131
18	0.31	-2.51	-3.89	-0.5663	0.3009	0.7562	-0.3400	0.31	0.8243	-0.0897
19	0.33	-2.65	-4.17	-0.6181	0.1693	0.8444	-0.4506	0.33	0.9451	-0.1512
20	0.35	-2.79	-4.45	-0.6578	0.0620	0.9174	-0.5387	0.35	1.0464	-0.1924
21	0.37	-2.93	-4.73	-0.6847	-0.0025	0.9598	-0.5942	0.37	1.1091	-0.2108
22	0.38	-3.07	-5.01	-0.6983	-0.0143	0.9632	-0.6119	0.38	1.1223	-0.2065
23	0.40	-3.21	-5.29	-0.6983	0.0266	0.9278	-0.5914	0.40	1.0852	-0.1819
24	0.42	-3.35	-5.57	-0.6847	0.1098	0.8625	-0.5381	0.42	1.0068	-0.1407
25	0.44	-3.49	-5.85	-0.6578	0.2170	0.7832	-0.4612	0.44	0.9047	-0.0870
26	0.45	-3.63	-6.13	-0.6181	0.3246	0.7099	-0.3730	0.45	0.8015	-0.0240
27	0.47	-3.77	-6.41	-0.5663	0.4084	0.6632	-0.2862	0.47	0.7208	0.0460
28	0.49	-3.91	-6.68	-0.5035	0.4476	0.6606	-0.2123	0.49	0.6829	0.1227
29	0.51	-4.05	-6.96	-0.4310	0.4287	0.7133	-0.1589	0.51	0.7009	0.2068
30	0.52	-4.19	-7.24	-0.3500	0.3477	0.8239	-0.1293	0.52	0.7781	0.3000
31	0.54	-4.33	-7.52	-0.2622	0.2113	0.9859	-0.1214	0.54	0.9076	0.4037
32	0.56	-4.47	-7.80	-0.1693	0.0355	1.1845	-0.1289	0.56	1.0728	0.5184
33	0.58	-4.61	-8.08	-0.0732	-0.1566	1.3990	-0.1417	0.58	1.2505	0.6432
34	0.59	-4.75	-8.36	0.0244	-0.3392	1.6059	-0.1484	0.59	1.4144	0.7750
35	0.61	-4.89	-8.64	0.1216	-0.4875	1.7829	-0.1385	0.61	1.5399	0.9092
36	0.63	-5.03	-8.92	0.2163	-0.5823	1.9124	-0.1038	0.63	1.6082	1.0401
37	0.65	-5.17	-9.20	0.3069	-0.6130	1.9843	-0.0408	0.65	1.6093	1.1616
38	0.66	-5.31	-9.48	0.3914	-0.5795	1.9976	0.0492	0.66	1.5438	1.2686
39	0.68	-5.45	-9.76	0.4684	-0.4919	1.9602	0.1597	0.68	1.4228	1.3577
40	0.70	-5.59	-10.04	0.5362	-0.3686	1.8873	0.2801	0.70	1.2657	1.4277
41	0.72	-5.72	-10.31	0.5936	-0.2334	1.7990	0.3974	0.72	1.0970	1.4801
42	0.73	-5.86	-10.59	0.6395	-0.1112	1.7161	0.4982	0.73	0.9419	1.5185
43	0.75	-6.00	-10.87	0.6729	-0.0235	1.6568	0.5710	0.75	0.8223	1.5475
44	0.77	-6.14	-11.15	0.6932	0.0152	1.6334	0.6079	0.77	0.7527	1.5720
45	0.79	-6.28	-11.43	0.7000	0.0000	1.6500	0.6062	0.79	0.7381	1.5954
46	0.80	-6.42	-11.71	0.6932	-0.0639	1.7019	0.5684	0.80	0.7734	1.6191
47	0.82	-6.56	-11.99	0.6729	-0.1618	1.7766	0.5018	0.82	0.8446	1.6416
48	0.84	-6.70	-12.27	0.6395	-0.2723	1.8555	0.4177	0.84	0.9312	1.6584
49	0.86	-6.84	-12.55	0.5936	-0.3709	1.9180	0.3287	0.86	1.0103	1.6632
50	0.87	-6.98	-12.83	0.5362	-0.4346	1.9445	0.2471	0.87	1.0606	1.6484
51	0.89	-7.12	-13.11	0.4684	-0.4459	1.9204	0.1827	0.89	1.0665	1.6074
52	0.91	-7.26	-13.39	0.3914	-0.3958	1.8385	0.1411	0.91	1.0207	1.5356
53	0.93	-7.40	-13.67	0.3069	-0.2856	1.7008	0.1229	0.93	0.9254	1.4323
54	0.94	-7.54	-13.95	0.2163	-0.1270	1.5182	0.1238	0.94	0.7922	1.3010
55	0.96	-7.68	-14.22	0.1216	0.0601	1.3087	0.1353	0.96	0.6398	1.1497
56	0.98	-7.82	-14.50	0.0244	0.2507	1.0951	0.1465	0.98	0.4909	0.9898
57	0.99	-7.96	-14.78	-0.0732	0.4190	0.9006	0.1461	0.99	0.3680	0.8349

58	1.01	-8.10	-15.06	-0.1693	0.5424	0.7456	0.1246	1.01	0.2895	0.6983
59	1.03	-8.24	-15.34	-0.2622	0.6059	0.6441	0.0759	1.03	0.2667	0.5912
60	1.05	-8.38	-15.62	-0.3500	0.6039	0.6020	-0.0012	1.05	0.3020	0.5208
61	1.06	-8.52	-15.90	-0.4310	0.5415	0.6156	-0.1025	1.06	0.3881	0.4887
62	1.08	-8.66	-16.18	-0.5035	0.4333	0.6730	-0.2194	1.08	0.5097	0.4912
63	1.10	-8.80	-16.46	-0.5663	0.3009	0.7562	-0.3400	1.10	0.6463	0.5195
64	1.12	-8.94	-16.74	-0.6181	0.1693	0.8444	-0.4506	1.12	0.7752	0.5614
65	1.13	-9.08	-17.02	-0.6578	0.0620	0.9174	-0.5387	1.13	0.8759	0.6038
66	1.15	-9.22	-17.30	-0.6847	-0.0025	0.9598	-0.5942	1.15	0.9333	0.6352
67	1.17	-9.35	-17.58	-0.6983	-0.0143	0.9632	-0.6119	1.17	0.9396	0.6476
68	1.19	-9.49	-17.85	-0.6983	0.0266	0.9278	-0.5914	1.19	0.8959	0.6387
69	1.20	-9.63	-18.13	-0.6847	0.1098	0.8625	-0.5381	1.20	0.8114	0.6124
70	1.22	-9.77	-18.41	-0.6578	0.2170	0.7832	-0.4612	1.22	0.7012	0.5782
71	1.24	-9.91	-18.69	-0.6181	0.3246	0.7099	-0.3730	1.24	0.5838	0.5498
72	1.26	-10.05	-18.97	-0.5663	0.4084	0.6632	-0.2862	1.26	0.4772	0.5423
73	1.27	-10.19	-19.25	-0.5035	0.4476	0.6606	-0.2123	1.27	0.3961	0.5697
74	1.29	-10.33	-19.53	-0.4310	0.4287	0.7133	-0.1589	1.29	0.3493	0.6418
75	1.31	-10.47	-19.81	-0.3500	0.3477	0.8239	-0.1293	1.31	0.3381	0.7623
76	1.33	-10.61	-20.09	-0.2622	0.2113	0.9859	-0.1214	1.33	0.3563	0.9272
77	1.34	-10.75	-20.37	-0.1693	0.0355	1.1845	-0.1289	1.34	0.3920	1.1252
78	1.36	-10.89	-20.65	-0.0732	-0.1566	1.3990	-0.1417	1.36	0.4294	1.3390
79	1.38	-11.03	-20.93	0.0244	-0.3392	1.6059	-0.1484	1.38	0.4521	1.5481
80	1.40	-11.17	-21.21	0.1216	-0.4875	1.7829	-0.1385	1.40	0.4460	1.7318
81	1.41	-11.31	-21.49	0.2163	-0.5823	1.9124	-0.1038	1.41	0.4017	1.8726
82	1.43	-11.45	-21.76	0.3069	-0.6130	1.9843	-0.0408	1.43	0.3165	1.9593
83	1.45	-11.59	-22.04	0.3914	-0.5795	1.9976	0.0492	1.45	0.1946	1.9887
84	1.47	-11.73	-22.32	0.4684	-0.4919	1.9602	0.1597	1.47	0.0461	1.9661
85	1.48	-11.87	-22.60	0.5362	-0.3686	1.8873	0.2801	1.48	-0.1145	1.9045
86	1.50	-12.01	-22.88	0.5936	-0.2334	1.7990	0.3974	1.50	-0.2709	1.8223
87	1.52	-12.15	-23.16	0.6395	-0.1112	1.7161	0.4982	1.52	-0.4077	1.7398
88	1.54	-12.29	-23.44	0.6729	-0.0235	1.6568	0.5710	1.54	-0.5128	1.6757
89	1.55	-12.43	-23.72	0.6932	0.0152	1.6334	0.6079	1.55	-0.5793	1.6438
90	1.57	-12.57	-24.00	0.7000	0.0000	1.6500	0.6062	1.57	-0.6062	1.6500
91	1.59	-12.71	-24.28	0.6932	-0.0639	1.7019	0.5684	1.59	-0.5980	1.6918
92	1.61	-12.85	-24.56	0.6729	-0.1618	1.7766	0.5018	1.61	-0.5635	1.7580
93	1.62	-12.99	-24.84	0.6395	-0.2723	1.8555	0.4177	1.62	-0.5142	1.8311
94	1.64	-13.12	-25.12	0.5936	-0.3709	1.9180	0.3287	1.64	-0.4617	1.8904
95	1.66	-13.26	-25.39	0.5362	-0.4346	1.9445	0.2471	1.66	-0.4156	1.9156
96	1.68	-13.40	-25.67	0.4684	-0.4459	1.9204	0.1827	1.68	-0.3824	1.8907
97	1.69	-13.54	-25.95	0.3914	-0.3958	1.8385	0.1411	1.69	-0.3641	1.8076
98	1.71	-13.68	-26.23	0.3069	-0.2856	1.7008	0.1229	1.71	-0.3584	1.6671
99	1.73	-13.82	-26.51	0.2163	-0.1270	1.5182	0.1238	1.73	-0.3598	1.4801
100	1.75	-13.96	-26.79	0.1216	0.0601	1.3087	0.1353	1.75	-0.3605	1.2654
101	1.76	-14.10	-27.07	0.0244	0.2507	1.0951	0.1465	1.76	-0.3528	1.0470

102	1.78	-14.24	-27.35	-0.0732	0.4190	0.9006	0.1461	1.78	-0.3302	0.8505
103	1.80	-14.38	-27.63	-0.1693	0.5424	0.7456	0.1246	1.80	-0.2891	0.6984
104	1.82	-14.52	-27.91	-0.2622	0.6059	0.6441	0.0759	1.82	-0.2294	0.6067
105	1.83	-14.66	-28.19	-0.3500	0.6039	0.6020	-0.0012	1.83	-0.1547	0.5818
106	1.85	-14.80	-28.47	-0.4310	0.5415	0.6156	-0.1025	1.85	-0.0712	0.6200
107	1.87	-14.94	-28.75	-0.5035	0.4333	0.6730	-0.2194	1.87	0.0131	0.7078
108	1.88	-15.08	-29.02	-0.5663	0.3009	0.7562	-0.3400	1.88	0.0897	0.8243
109	1.90	-15.22	-29.30	-0.6181	0.1693	0.8444	-0.4506	1.90	0.1512	0.9451
110	1.92	-15.36	-29.58	-0.6578	0.0620	0.9174	-0.5387	1.92	0.1924	1.0464
111	1.94	-15.50	-29.86	-0.6847	-0.0025	0.9598	-0.5942	1.94	0.2108	1.1091
112	1.95	-15.64	-30.14	-0.6983	-0.0143	0.9632	-0.6119	1.95	0.2065	1.1223
113	1.97	-15.78	-30.42	-0.6983	0.0266	0.9278	-0.5914	1.97	0.1819	1.0852
114	1.99	-15.92	-30.70	-0.6847	0.1098	0.8625	-0.5381	1.99	0.1407	1.0068
115	2.01	-16.06	-30.98	-0.6578	0.2170	0.7832	-0.4612	2.01	0.0870	0.9047
116	2.02	-16.20	-31.26	-0.6181	0.3246	0.7099	-0.3730	2.02	0.0240	0.8015
117	2.04	-16.34	-31.54	-0.5663	0.4084	0.6632	-0.2862	2.04	-0.0460	0.7208
118	2.06	-16.48	-31.82	-0.5035	0.4476	0.6606	-0.2123	2.06	-0.1227	0.6829
119	2.08	-16.62	-32.10	-0.4310	0.4287	0.7133	-0.1589	2.08	-0.2068	0.7009
120	2.09	-16.76	-32.38	-0.3500	0.3477	0.8239	-0.1293	2.09	-0.3000	0.7781
121	2.11	-16.89	-32.66	-0.2622	0.2113	0.9859	-0.1214	2.11	-0.4037	0.9076
122	2.13	-17.03	-32.93	-0.1693	0.0355	1.1845	-0.1289	2.13	-0.5184	1.0728
123	2.15	-17.17	-33.21	-0.0732	-0.1566	1.3990	-0.1417	2.15	-0.6432	1.2505
124	2.16	-17.31	-33.49	0.0244	-0.3392	1.6059	-0.1484	2.16	-0.7750	1.4144
125	2.18	-17.45	-33.77	0.1216	-0.4875	1.7829	-0.1385	2.18	-0.9092	1.5399
126	2.20	-17.59	-34.05	0.2163	-0.5823	1.9124	-0.1038	2.20	-1.0401	1.6082
127	2.22	-17.73	-34.33	0.3069	-0.6130	1.9843	-0.0408	2.22	-1.1616	1.6093
128	2.23	-17.87	-34.61	0.3914	-0.5795	1.9976	0.0492	2.23	-1.2686	1.5438
129	2.25	-18.01	-34.89	0.4684	-0.4919	1.9602	0.1597	2.25	-1.3577	1.4228
130	2.27	-18.15	-35.17	0.5362	-0.3686	1.8873	0.2801	2.27	-1.4277	1.2657
131	2.29	-18.29	-35.45	0.5936	-0.2334	1.7990	0.3974	2.29	-1.4801	1.0970
132	2.30	-18.43	-35.73	0.6395	-0.1112	1.7161	0.4982	2.30	-1.5185	0.9419
133	2.32	-18.57	-36.01	0.6729	-0.0235	1.6568	0.5710	2.32	-1.5475	0.8223
134	2.34	-18.71	-36.29	0.6932	0.0152	1.6334	0.6079	2.34	-1.5720	0.7527
135	2.36	-18.85	-36.56	0.7000	0.0000	1.6500	0.6062	2.36	-1.5954	0.7381
136	2.37	-18.99	-36.84	0.6932	-0.0639	1.7019	0.5684	2.37	-1.6191	0.7734
137	2.39	-19.13	-37.12	0.6729	-0.1618	1.7766	0.5018	2.39	-1.6416	0.8446
138	2.41	-19.27	-37.40	0.6395	-0.2723	1.8555	0.4177	2.41	-1.6584	0.9312
139	2.43	-19.41	-37.68	0.5936	-0.3709	1.9180	0.3287	2.43	-1.6632	1.0103
140	2.44	-19.55	-37.96	0.5362	-0.4346	1.9445	0.2471	2.44	-1.6484	1.0606
141	2.46	-19.69	-38.24	0.4684	-0.4459	1.9204	0.1827	2.46	-1.6074	1.0665
142	2.48	-19.83	-38.52	0.3914	-0.3958	1.8385	0.1411	2.48	-1.5356	1.0207
143	2.50	-19.97	-38.80	0.3069	-0.2856	1.7008	0.1229	2.50	-1.4323	0.9254
144	2.51	-20.11	-39.08	0.2163	-0.1270	1.5182	0.1238	2.51	-1.3010	0.7922
145	2.53	-20.25	-39.36	0.1216	0.0601	1.3087	0.1353	2.53	-1.1497	0.6398

146	2.55	-20.39	-39.64	0.0244	0.2507	1.0951	0.1465	2.55	-0.9898	0.4909
147	2.57	-20.53	-39.92	-0.0732	0.4190	0.9006	0.1461	2.57	-0.8349	0.3680
148	2.58	-20.66	-40.19	-0.1693	0.5424	0.7456	0.1246	2.58	-0.6983	0.2895
149	2.60	-20.80	-40.47	-0.2622	0.6059	0.6441	0.0759	2.60	-0.5912	0.2667
150	2.62	-20.94	-40.75	-0.3500	0.6039	0.6020	-0.0012	2.62	-0.5208	0.3020
151	2.64	-21.08	-41.03	-0.4310	0.5415	0.6156	-0.1025	2.64	-0.4887	0.3881
152	2.65	-21.22	-41.31	-0.5035	0.4333	0.6730	-0.2194	2.65	-0.4912	0.5097
153	2.67	-21.36	-41.59	-0.5663	0.3009	0.7562	-0.3400	2.67	-0.5195	0.6463
154	2.69	-21.50	-41.87	-0.6181	0.1693	0.8444	-0.4506	2.69	-0.5614	0.7752
155	2.71	-21.64	-42.15	-0.6578	0.0620	0.9174	-0.5387	2.71	-0.6038	0.8759
156	2.72	-21.78	-42.43	-0.6847	-0.0025	0.9598	-0.5942	2.72	-0.6352	0.9333
157	2.74	-21.92	-42.71	-0.6983	-0.0143	0.9632	-0.6119	2.74	-0.6476	0.9396
158	2.76	-22.06	-42.99	-0.6983	0.0266	0.9278	-0.5914	2.76	-0.6387	0.8959
159	2.78	-22.20	-43.27	-0.6847	0.1098	0.8625	-0.5381	2.78	-0.6124	0.8114
160	2.79	-22.34	-43.55	-0.6578	0.2170	0.7832	-0.4612	2.79	-0.5782	0.7012
161	2.81	-22.48	-43.83	-0.6181	0.3246	0.7099	-0.3730	2.81	-0.5498	0.5838
162	2.83	-22.62	-44.10	-0.5663	0.4084	0.6632	-0.2862	2.83	-0.5423	0.4772
163	2.84	-22.76	-44.38	-0.5035	0.4476	0.6606	-0.2123	2.84	-0.5697	0.3961
164	2.86	-22.90	-44.66	-0.4310	0.4287	0.7133	-0.1589	2.86	-0.6418	0.3493
165	2.88	-23.04	-44.94	-0.3500	0.3477	0.8239	-0.1293	2.88	-0.7623	0.3381
166	2.90	-23.18	-45.22	-0.2622	0.2113	0.9859	-0.1214	2.90	-0.9272	0.3563
167	2.91	-23.32	-45.50	-0.1693	0.0355	1.1845	-0.1289	2.91	-1.1252	0.3920
168	2.93	-23.46	-45.78	-0.0732	-0.1566	1.3990	-0.1417	2.93	-1.3390	0.4294
169	2.95	-23.60	-46.06	0.0244	-0.3392	1.6059	-0.1484	2.95	-1.5481	0.4521
170	2.97	-23.74	-46.34	0.1216	-0.4875	1.7829	-0.1385	2.97	-1.7318	0.4460
171	2.98	-23.88	-46.62	0.2163	-0.5823	1.9124	-0.1038	2.98	-1.8726	0.4017
172	3.00	-24.02	-46.90	0.3069	-0.6130	1.9843	-0.0408	3.00	-1.9593	0.3165
173	3.02	-24.16	-47.18	0.3914	-0.5795	1.9976	0.0492	3.02	-1.9887	0.1946
174	3.04	-24.29	-47.46	0.4684	-0.4919	1.9602	0.1597	3.04	-1.9661	0.0461
175	3.05	-24.43	-47.73	0.5362	-0.3686	1.8873	0.2801	3.05	-1.9045	-0.1145
176	3.07	-24.57	-48.01	0.5936	-0.2334	1.7990	0.3974	3.07	-1.8223	-0.2709
177	3.09	-24.71	-48.29	0.6395	-0.1112	1.7161	0.4982	3.09	-1.7398	-0.4077
178	3.11	-24.85	-48.57	0.6729	-0.0235	1.6568	0.5710	3.11	-1.6757	-0.5128
179	3.12	-24.99	-48.85	0.6932	0.0152	1.6334	0.6079	3.12	-1.6438	-0.5793
180	3.14	-25.13	-49.13	0.7000	0.0000	1.6500	0.6062	3.14	-1.6500	-0.6062
181	3.16	-25.27	-49.41	0.6932	-0.0639	1.7019	0.5684	3.16	-1.6918	-0.5980
182	3.18	-25.41	-49.69	0.6729	-0.1618	1.7766	0.5018	3.18	-1.7580	-0.5635
183	3.19	-25.55	-49.97	0.6395	-0.2723	1.8555	0.4177	3.19	-1.8311	-0.5142
184	3.21	-25.69	-50.25	0.5936	-0.3709	1.9180	0.3287	3.21	-1.8904	-0.4617
185	3.23	-25.83	-50.53	0.5362	-0.4346	1.9445	0.2471	3.23	-1.9156	-0.4156
186	3.25	-25.97	-50.81	0.4684	-0.4459	1.9204	0.1827	3.25	-1.8907	-0.3824
187	3.26	-26.11	-51.09	0.3914	-0.3958	1.8385	0.1411	3.26	-1.8076	-0.3641
188	3.28	-26.25	-51.37	0.3069	-0.2856	1.7008	0.1229	3.28	-1.6671	-0.3584
189	3.30	-26.39	-51.64	0.2163	-0.1270	1.5182	0.1238	3.30	-1.4801	-0.3598

190	3.32	-26.53	-51.92	0.1216	0.0601	1.3087	0.1353	3.32	-1.2654	-0.3605
191	3.33	-26.67	-52.20	0.0244	0.2507	1.0951	0.1465	3.33	-1.0470	-0.3528
192	3.35	-26.81	-52.48	-0.0732	0.4190	0.9006	0.1461	3.35	-0.8505	-0.3302
193	3.37	-26.95	-52.76	-0.1693	0.5424	0.7456	0.1246	3.37	-0.6984	-0.2891
194	3.39	-27.09	-53.04	-0.2622	0.6059	0.6441	0.0759	3.39	-0.6067	-0.2294
195	3.40	-27.23	-53.32	-0.3500	0.6039	0.6020	-0.0012	3.40	-0.5818	-0.1547
196	3.42	-27.37	-53.60	-0.4310	0.5415	0.6156	-0.1025	3.42	-0.6200	-0.0712
197	3.44	-27.51	-53.88	-0.5035	0.4333	0.6730	-0.2194	3.44	-0.7078	0.0131
198	3.46	-27.65	-54.16	-0.5663	0.3009	0.7562	-0.3400	3.46	-0.8243	0.0897
199	3.47	-27.79	-54.44	-0.6181	0.1693	0.8444	-0.4506	3.47	-0.9451	0.1512
200	3.49	-27.93	-54.72	-0.6578	0.0620	0.9174	-0.5387	3.49	-1.0464	0.1924
201	3.51	-28.06	-55.00	-0.6847	-0.0025	0.9598	-0.5942	3.51	-1.1091	0.2108
202	3.53	-28.20	-55.27	-0.6983	-0.0143	0.9632	-0.6119	3.53	-1.1223	0.2065
203	3.54	-28.34	-55.55	-0.6983	0.0266	0.9278	-0.5914	3.54	-1.0852	0.1819
204	3.56	-28.48	-55.83	-0.6847	0.1098	0.8625	-0.5381	3.56	-1.0068	0.1407
205	3.58	-28.62	-56.11	-0.6578	0.2170	0.7832	-0.4612	3.58	-0.9047	0.0870
206	3.60	-28.76	-56.39	-0.6181	0.3246	0.7099	-0.3730	3.60	-0.8015	0.0240
207	3.61	-28.90	-56.67	-0.5663	0.4084	0.6632	-0.2862	3.61	-0.7208	-0.0460
208	3.63	-29.04	-56.95	-0.5035	0.4476	0.6606	-0.2123	3.63	-0.6829	-0.1227
209	3.65	-29.18	-57.23	-0.4310	0.4287	0.7133	-0.1589	3.65	-0.7009	-0.2068
210	3.67	-29.32	-57.51	-0.3500	0.3477	0.8239	-0.1293	3.67	-0.7781	-0.3000
211	3.68	-29.46	-57.79	-0.2622	0.2113	0.9859	-0.1214	3.68	-0.9076	-0.4037
212	3.70	-29.60	-58.07	-0.1693	0.0355	1.1845	-0.1289	3.70	-1.0728	-0.5184
213	3.72	-29.74	-58.35	-0.0732	-0.1566	1.3990	-0.1417	3.72	-1.2505	-0.6432
214	3.74	-29.88	-58.63	0.0244	-0.3392	1.6059	-0.1484	3.74	-1.4144	-0.7750
215	3.75	-30.02	-58.90	0.1216	-0.4875	1.7829	-0.1385	3.75	-1.5399	-0.9092
216	3.77	-30.16	-59.18	0.2163	-0.5823	1.9124	-0.1038	3.77	-1.6082	-1.0401
217	3.79	-30.30	-59.46	0.3069	-0.6130	1.9843	-0.0408	3.79	-1.6093	-1.1616
218	3.80	-30.44	-59.74	0.3914	-0.5795	1.9976	0.0492	3.80	-1.5438	-1.2686
219	3.82	-30.58	-60.02	0.4684	-0.4919	1.9602	0.1597	3.82	-1.4228	-1.3577
220	3.84	-30.72	-60.30	0.5362	-0.3686	1.8873	0.2801	3.84	-1.2657	-1.4277
221	3.86	-30.86	-60.58	0.5936	-0.2334	1.7990	0.3974	3.86	-1.0970	-1.4801
222	3.87	-31.00	-60.86	0.6395	-0.1112	1.7161	0.4982	3.87	-0.9419	-1.5185
223	3.89	-31.14	-61.14	0.6729	-0.0235	1.6568	0.5710	3.89	-0.8223	-1.5475
224	3.91	-31.28	-61.42	0.6932	0.0152	1.6334	0.6079	3.91	-0.7527	-1.5720
225	3.93	-31.42	-61.70	0.7000	0.0000	1.6500	0.6062	3.93	-0.7381	-1.5954
226	3.94	-31.56	-61.98	0.6932	-0.0639	1.7019	0.5684	3.94	-0.7734	-1.6191
227	3.96	-31.70	-62.26	0.6729	-0.1618	1.7766	0.5018	3.96	-0.8446	-1.6416
228	3.98	-31.83	-62.54	0.6395	-0.2723	1.8555	0.4177	3.98	-0.9312	-1.6584
229	4.00	-31.97	-62.81	0.5936	-0.3709	1.9180	0.3287	4.00	-1.0103	-1.6632
230	4.01	-32.11	-63.09	0.5362	-0.4346	1.9445	0.2471	4.01	-1.0606	-1.6484
231	4.03	-32.25	-63.37	0.4684	-0.4459	1.9204	0.1827	4.03	-1.0665	-1.6074
232	4.05	-32.39	-63.65	0.3914	-0.3958	1.8385	0.1411	4.05	-1.0207	-1.5356
233	4.07	-32.53	-63.93	0.3069	-0.2856	1.7008	0.1229	4.07	-0.9254	-1.4323

234	4.08	-32.67	-64.21	0.2163	-0.1270	1.5182	0.1238	4.08	-0.7922	-1.3010
235	4.10	-32.81	-64.49	0.1216	0.0601	1.3087	0.1353	4.10	-0.6398	-1.1497
236	4.12	-32.95	-64.77	0.0244	0.2507	1.0951	0.1465	4.12	-0.4909	-0.9898
237	4.14	-33.09	-65.05	-0.0732	0.4190	0.9006	0.1461	4.14	-0.3680	-0.8349
238	4.15	-33.23	-65.33	-0.1693	0.5424	0.7456	0.1246	4.15	-0.2895	-0.6983
239	4.17	-33.37	-65.61	-0.2622	0.6059	0.6441	0.0759	4.17	-0.2667	-0.5912
240	4.19	-33.51	-65.89	-0.3500	0.6039	0.6020	-0.0012	4.19	-0.3020	-0.5208
241	4.21	-33.65	-66.17	-0.4310	0.5415	0.6156	-0.1025	4.21	-0.3881	-0.4887
242	4.22	-33.79	-66.44	-0.5035	0.4333	0.6730	-0.2194	4.22	-0.5097	-0.4912
243	4.24	-33.93	-66.72	-0.5663	0.3009	0.7562	-0.3400	4.24	-0.6463	-0.5195
244	4.26	-34.07	-67.00	-0.6181	0.1693	0.8444	-0.4506	4.26	-0.7752	-0.5614
245	4.28	-34.21	-67.28	-0.6578	0.0620	0.9174	-0.5387	4.28	-0.8759	-0.6038
246	4.29	-34.35	-67.56	-0.6847	-0.0025	0.9598	-0.5942	4.29	-0.9333	-0.6352
247	4.31	-34.49	-67.84	-0.6983	-0.0143	0.9632	-0.6119	4.31	-0.9396	-0.6476
248	4.33	-34.63	-68.12	-0.6983	0.0266	0.9278	-0.5914	4.33	-0.8959	-0.6387
249	4.35	-34.77	-68.40	-0.6847	0.1098	0.8625	-0.5381	4.35	-0.8114	-0.6124
250	4.36	-34.91	-68.68	-0.6578	0.2170	0.7832	-0.4612	4.36	-0.7012	-0.5782
251	4.38	-35.05	-68.96	-0.6181	0.3246	0.7099	-0.3730	4.38	-0.5838	-0.5498
252	4.40	-35.19	-69.24	-0.5663	0.4084	0.6632	-0.2862	4.40	-0.4772	-0.5423
253	4.42	-35.33	-69.52	-0.5035	0.4476	0.6606	-0.2123	4.42	-0.3961	-0.5697
254	4.43	-35.47	-69.80	-0.4310	0.4287	0.7133	-0.1589	4.43	-0.3493	-0.6418
255	4.45	-35.60	-70.07	-0.3500	0.3477	0.8239	-0.1293	4.45	-0.3381	-0.7623
256	4.47	-35.74	-70.35	-0.2622	0.2113	0.9859	-0.1214	4.47	-0.3563	-0.9272
257	4.49	-35.88	-70.63	-0.1693	0.0355	1.1845	-0.1289	4.49	-0.3920	-1.1252
258	4.50	-36.02	-70.91	-0.0732	-0.1566	1.3990	-0.1417	4.50	-0.4294	-1.3390
259	4.52	-36.16	-71.19	0.0244	-0.3392	1.6059	-0.1484	4.52	-0.4521	-1.5481
260	4.54	-36.30	-71.47	0.1216	-0.4875	1.7829	-0.1385	4.54	-0.4460	-1.7318
261	4.56	-36.44	-71.75	0.2163	-0.5823	1.9124	-0.1038	4.56	-0.4017	-1.8726
262	4.57	-36.58	-72.03	0.3069	-0.6130	1.9843	-0.0408	4.57	-0.3165	-1.9593
263	4.59	-36.72	-72.31	0.3914	-0.5795	1.9976	0.0492	4.59	-0.1946	-1.9887
264	4.61	-36.86	-72.59	0.4684	-0.4919	1.9602	0.1597	4.61	-0.0461	-1.9661
265	4.63	-37.00	-72.87	0.5362	-0.3686	1.8873	0.2801	4.63	0.1145	-1.9045
266	4.64	-37.14	-73.15	0.5936	-0.2334	1.7990	0.3974	4.64	0.2709	-1.8223
267	4.66	-37.28	-73.43	0.6395	-0.1112	1.7161	0.4982	4.66	0.4077	-1.7398
268	4.68	-37.42	-73.71	0.6729	-0.0235	1.6568	0.5710	4.68	0.5128	-1.6757
269	4.69	-37.56	-73.98	0.6932	0.0152	1.6334	0.6079	4.69	0.5793	-1.6438
270	4.71	-37.70	-74.26	0.7000	0.0000	1.6500	0.6062	4.71	0.6062	-1.6500
271	4.73	-37.84	-74.54	0.6932	-0.0639	1.7019	0.5684	4.73	0.5980	-1.6918
272	4.75	-37.98	-74.82	0.6729	-0.1618	1.7766	0.5018	4.75	0.5635	-1.7580
273	4.76	-38.12	-75.10	0.6395	-0.2723	1.8555	0.4177	4.76	0.5142	-1.8311
274	4.78	-38.26	-75.38	0.5936	-0.3709	1.9180	0.3287	4.78	0.4617	-1.8904
275	4.80	-38.40	-75.66	0.5362	-0.4346	1.9445	0.2471	4.80	0.4156	-1.9156
276	4.82	-38.54	-75.94	0.4684	-0.4459	1.9204	0.1827	4.82	0.3824	-1.8907
277	4.83	-38.68	-76.22	0.3914	-0.3958	1.8385	0.1411	4.83	0.3641	-1.8076

278	4.85	-38.82	-76.50	0.3069	-0.2856	1.7008	0.1229	4.85	0.3584	-1.6671
279	4.87	-38.96	-76.78	0.2163	-0.1270	1.5182	0.1238	4.87	0.3598	-1.4801
280	4.89	-39.10	-77.06	0.1216	0.0601	1.3087	0.1353	4.89	0.3605	-1.2654
281	4.90	-39.24	-77.34	0.0244	0.2507	1.0951	0.1465	4.90	0.3528	-1.0470
282	4.92	-39.37	-77.61	-0.0732	0.4190	0.9006	0.1461	4.92	0.3302	-0.8505
283	4.94	-39.51	-77.89	-0.1693	0.5424	0.7456	0.1246	4.94	0.2891	-0.6984
284	4.96	-39.65	-78.17	-0.2622	0.6059	0.6441	0.0759	4.96	0.2294	-0.6067
285	4.97	-39.79	-78.45	-0.3500	0.6039	0.6020	-0.0012	4.97	0.1547	-0.5818
286	4.99	-39.93	-78.73	-0.4310	0.5415	0.6156	-0.1025	4.99	0.0712	-0.6200
287	5.01	-40.07	-79.01	-0.5035	0.4333	0.6730	-0.2194	5.01	-0.0131	-0.7078
288	5.03	-40.21	-79.29	-0.5663	0.3009	0.7562	-0.3400	5.03	-0.0897	-0.8243
289	5.04	-40.35	-79.57	-0.6181	0.1693	0.8444	-0.4506	5.04	-0.1512	-0.9451
290	5.06	-40.49	-79.85	-0.6578	0.0620	0.9174	-0.5387	5.06	-0.1924	-1.0464
291	5.08	-40.63	-80.13	-0.6847	-0.0025	0.9598	-0.5942	5.08	-0.2108	-1.1091
292	5.10	-40.77	-80.41	-0.6983	-0.0143	0.9632	-0.6119	5.10	-0.2065	-1.1223
293	5.11	-40.91	-80.69	-0.6983	0.0266	0.9278	-0.5914	5.11	-0.1819	-1.0852
294	5.13	-41.05	-80.97	-0.6847	0.1098	0.8625	-0.5381	5.13	-0.1407	-1.0068
295	5.15	-41.19	-81.25	-0.6578	0.2170	0.7832	-0.4612	5.15	-0.0870	-0.9047
296	5.17	-41.33	-81.52	-0.6181	0.3246	0.7099	-0.3730	5.17	-0.0240	-0.8015
297	5.18	-41.47	-81.80	-0.5663	0.4084	0.6632	-0.2862	5.18	0.0460	-0.7208
298	5.20	-41.61	-82.08	-0.5035	0.4476	0.6606	-0.2123	5.20	0.1227	-0.6829
299	5.22	-41.75	-82.36	-0.4310	0.4287	0.7133	-0.1589	5.22	0.2068	-0.7009
300	5.24	-41.89	-82.64	-0.3500	0.3477	0.8239	-0.1293	5.24	0.3000	-0.7781
301	5.25	-42.03	-82.92	-0.2622	0.2113	0.9859	-0.1214	5.25	0.4037	-0.9076
302	5.27	-42.17	-83.20	-0.1693	0.0355	1.1845	-0.1289	5.27	0.5184	-1.0728
303	5.29	-42.31	-83.48	-0.0732	-0.1566	1.3990	-0.1417	5.29	0.6432	-1.2505
304	5.31	-42.45	-83.76	0.0244	-0.3392	1.6059	-0.1484	5.31	0.7750	-1.4144
305	5.32	-42.59	-84.04	0.1216	-0.4875	1.7829	-0.1385	5.32	0.9092	-1.5399
306	5.34	-42.73	-84.32	0.2163	-0.5823	1.9124	-0.1038	5.34	1.0401	-1.6082
307	5.36	-42.87	-84.60	0.3069	-0.6130	1.9843	-0.0408	5.36	1.1616	-1.6093
308	5.38	-43.00	-84.88	0.3914	-0.5795	1.9976	0.0492	5.38	1.2686	-1.5438
309	5.39	-43.14	-85.15	0.4684	-0.4919	1.9602	0.1597	5.39	1.3577	-1.4228
310	5.41	-43.28	-85.43	0.5362	-0.3686	1.8873	0.2801	5.41	1.4277	-1.2657
311	5.43	-43.42	-85.71	0.5936	-0.2334	1.7990	0.3974	5.43	1.4801	-1.0970
312	5.45	-43.56	-85.99	0.6395	-0.1112	1.7161	0.4982	5.45	1.5185	-0.9419
313	5.46	-43.70	-86.27	0.6729	-0.0235	1.6568	0.5710	5.46	1.5475	-0.8223
314	5.48	-43.84	-86.55	0.6932	0.0152	1.6334	0.6079	5.48	1.5720	-0.7527
315	5.50	-43.98	-86.83	0.7000	0.0000	1.6500	0.6062	5.50	1.5954	-0.7381
316	5.52	-44.12	-87.11	0.6932	-0.0639	1.7019	0.5684	5.52	1.6191	-0.7734
317	5.53	-44.26	-87.39	0.6729	-0.1618	1.7766	0.5018	5.53	1.6416	-0.8446
318	5.55	-44.40	-87.67	0.6395	-0.2723	1.8555	0.4177	5.55	1.6584	-0.9312
319	5.57	-44.54	-87.95	0.5936	-0.3709	1.9180	0.3287	5.57	1.6632	-1.0103
320	5.59	-44.68	-88.23	0.5362	-0.4346	1.9445	0.2471	5.59	1.6484	-1.0606
321	5.60	-44.82	-88.51	0.4684	-0.4459	1.9204	0.1827	5.60	1.6074	-1.0665

322	5.62	-44.96	-88.78	0.3914	-0.3958	1.8385	0.1411	5.62	1.5356	-1.0207
323	5.64	-45.10	-89.06	0.3069	-0.2856	1.7008	0.1229	5.64	1.4323	-0.9254
324	5.65	-45.24	-89.34	0.2163	-0.1270	1.5182	0.1238	5.65	1.3010	-0.7922
325	5.67	-45.38	-89.62	0.1216	0.0601	1.3087	0.1353	5.67	1.1497	-0.6398
326	5.69	-45.52	-89.90	0.0244	0.2507	1.0951	0.1465	5.69	0.9898	-0.4909
327	5.71	-45.66	-90.18	-0.0732	0.4190	0.9006	0.1461	5.71	0.8349	-0.3680
328	5.72	-45.80	-90.46	-0.1693	0.5424	0.7456	0.1246	5.72	0.6983	-0.2895
329	5.74	-45.94	-90.74	-0.2622	0.6059	0.6441	0.0759	5.74	0.5912	-0.2667
330	5.76	-46.08	-91.02	-0.3500	0.6039	0.6020	-0.0012	5.76	0.5208	-0.3020
331	5.78	-46.22	-91.30	-0.4310	0.5415	0.6156	-0.1025	5.78	0.4887	-0.3881
332	5.79	-46.36	-91.58	-0.5035	0.4333	0.6730	-0.2194	5.79	0.4912	-0.5097
333	5.81	-46.50	-91.86	-0.5663	0.3009	0.7562	-0.3400	5.81	0.5195	-0.6463
334	5.83	-46.64	-92.14	-0.6181	0.1693	0.8444	-0.4506	5.83	0.5614	-0.7752
335	5.85	-46.77	-92.42	-0.6578	0.0620	0.9174	-0.5387	5.85	0.6038	-0.8759
336	5.86	-46.91	-92.69	-0.6847	-0.0025	0.9598	-0.5942	5.86	0.6352	-0.9333
337	5.88	-47.05	-92.97	-0.6983	-0.0143	0.9632	-0.6119	5.88	0.6476	-0.9396
338	5.90	-47.19	-93.25	-0.6983	0.0266	0.9278	-0.5914	5.90	0.6387	-0.8959
339	5.92	-47.33	-93.53	-0.6847	0.1098	0.8625	-0.5381	5.92	0.6124	-0.8114
340	5.93	-47.47	-93.81	-0.6578	0.2170	0.7832	-0.4612	5.93	0.5782	-0.7012
341	5.95	-47.61	-94.09	-0.6181	0.3246	0.7099	-0.3730	5.95	0.5498	-0.5838
342	5.97	-47.75	-94.37	-0.5663	0.4084	0.6632	-0.2862	5.97	0.5423	-0.4772
343	5.99	-47.89	-94.65	-0.5035	0.4476	0.6606	-0.2123	5.99	0.5697	-0.3961
344	6.00	-48.03	-94.93	-0.4310	0.4287	0.7133	-0.1589	6.00	0.6418	-0.3493
345	6.02	-48.17	-95.21	-0.3500	0.3477	0.8239	-0.1293	6.02	0.7623	-0.3381
346	6.04	-48.31	-95.49	-0.2622	0.2113	0.9859	-0.1214	6.04	0.9272	-0.3563
347	6.06	-48.45	-95.77	-0.1693	0.0355	1.1845	-0.1289	6.06	1.1252	-0.3920
348	6.07	-48.59	-96.05	-0.0732	-0.1566	1.3990	-0.1417	6.07	1.3390	-0.4294
349	6.09	-48.73	-96.32	0.0244	-0.3392	1.6059	-0.1484	6.09	1.5481	-0.4521
350	6.11	-48.87	-96.60	0.1216	-0.4875	1.7829	-0.1385	6.11	1.7318	-0.4460
351	6.13	-49.01	-96.88	0.2163	-0.5823	1.9124	-0.1038	6.13	1.8726	-0.4017
352	6.14	-49.15	-97.16	0.3069	-0.6130	1.9843	-0.0408	6.14	1.9593	-0.3165
353	6.16	-49.29	-97.44	0.3914	-0.5795	1.9976	0.0492	6.16	1.9887	-0.1946
354	6.18	-49.43	-97.72	0.4684	-0.4919	1.9602	0.1597	6.18	1.9661	-0.0461
355	6.20	-49.57	-98.00	0.5362	-0.3686	1.8873	0.2801	6.20	1.9045	0.1145
356	6.21	-49.71	-98.28	0.5936	-0.2334	1.7990	0.3974	6.21	1.8223	0.2709
357	6.23	-49.85	-98.56	0.6395	-0.1112	1.7161	0.4982	6.23	1.7398	0.4077
358	6.25	-49.99	-98.84	0.6729	-0.0235	1.6568	0.5710	6.25	1.6757	0.5128
359	6.27	-50.13	-99.12	0.6932	0.0152	1.6334	0.6079	6.27	1.6438	0.5793
360	6.28	-50.27	-99.40	0.7000	0.0000	1.6500	0.6062	6.28	1.6500	0.6062

clockwise rather than counterclockwise.
 numbers (close to 1.0) provide smoothest curves.

metric with respect to the X axis. Setting number in the adjacent cell below to the negative of this value
 the amount you increase the number immediately above will slide any one point in the figure along a fixed
 in opposite direction.

sured in the plane of the chart). Set to 0 or multiples of 90 for most consistently symmetric results.
 number may also produce a symmetrical figure.

-0.6867	-0.6329
0.6783	0.6344
<hr/>	
Zplot	Zcos
0.0000	0.6344
0.0735	0.6282
0.1051	0.6098
0.0832	0.5796
0.0065	0.5380
-0.1165	0.4860
-0.2679	0.4245
-0.4244	0.3548
-0.5606	0.2781
-0.6535	0.1960
-0.6867	0.1102
-0.6531	0.0221
-0.5560	-0.0663
-0.4088	-0.1535

-0.2326	-0.2377
-0.0528	-0.3172
0.1053	-0.3906
0.2208	-0.4564
0.2806	-0.5133
0.2817	-0.5602
0.2313	-0.5962
0.1455	-0.6206
0.0467	-0.6329
-0.0410	-0.6329
-0.0955	-0.6206
-0.1012	-0.5962
-0.0514	-0.5602
0.0501	-0.5133
0.1900	-0.4564
0.3471	-0.3906
0.4966	-0.3172
0.6137	-0.2377
0.6783	-0.1535
0.6783	-0.0663
0.6119	0.0221
0.4875	0.1102
0.3228	0.1960
0.1415	0.2781
-0.0304	0.3548
-0.1694	0.4245
-0.2581	0.4860
-0.2883	0.5380
-0.2621	0.5796
-0.1915	0.6098
-0.0962	0.6282
0.0000	0.6344
0.0735	0.6282
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0.0065	0.5380
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-0.6867	0.1102
-0.6531	0.0221
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-0.4088	-0.1535
-0.2326	-0.2377
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0.1053	-0.3906
0.2208	-0.4564
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0.0501	-0.5133
0.1900	-0.4564
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0.4966	-0.3172
0.6137	-0.2377
0.6783	-0.1535
0.6783	-0.0663
0.6119	0.0221
0.4875	0.1102
0.3228	0.1960
0.1415	0.2781
-0.0304	0.3548
-0.1694	0.4245
-0.2581	0.4860
-0.2883	0.5380
-0.2621	0.5796
-0.1915	0.6098
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0.0000	0.6344
0.0735	0.6282
0.1051	0.6098
0.0832	0.5796
0.0065	0.5380
-0.1165	0.4860
-0.2679	0.4245

-0.4244	0.3548
-0.5606	0.2781
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-0.6867	0.1102
-0.6531	0.0221
-0.5560	-0.0663
-0.4088	-0.1535
-0.2326	-0.2377
-0.0528	-0.3172
0.1053	-0.3906
0.2208	-0.4564
0.2806	-0.5133
0.2817	-0.5602
0.2313	-0.5962
0.1455	-0.6206
0.0467	-0.6329
-0.0410	-0.6329
-0.0955	-0.6206
-0.1012	-0.5962
-0.0514	-0.5602
0.0501	-0.5133
0.1900	-0.4564
0.3471	-0.3906
0.4966	-0.3172
0.6137	-0.2377
0.6783	-0.1535
0.6783	-0.0663
0.6119	0.0221
0.4875	0.1102
0.3228	0.1960
0.1415	0.2781
-0.0304	0.3548
-0.1694	0.4245
-0.2581	0.4860
-0.2883	0.5380
-0.2621	0.5796
-0.1915	0.6098
-0.0962	0.6282
0.0000	0.6344

will maintain symmetry in angular figures.
and ellipse or line.)
