

FORMULARIO

III PROVA INTERCORSO

EQUAZIONI E TABELLE

PER LA PROGETTAZIONE DELLE

CURVE CIRCOLARI

Equazione al limite dello sbandamento

$$\checkmark \quad \frac{V^2}{R} = 127 \cdot (q + f_i)$$

Tabella 1 - Coefficienti di aderenza trasversale massimi

Velocità (Km/h)	25	40	60	80	100	120	140
Strade di tipo A, B, C, F extraurbane e relative strade di servizio	-	0.21	0.17	0.13	0.11	0.10	0.09
Strade di tipo D, E, F urbane e relative strade di servizio	0.22	0.21	0.20	0.16	-	-	-

Equazioni per il calcolo della velocità V

Per $V_{\max} = 100 - 120 - 140$ Km/h:

$$V^2 \cdot (1 - 0,0015 \cdot R) + 0,432 \cdot R \cdot V - 50,17 \cdot R = 0$$

Equazione per il calcolo della pendenza trasversale q

$$\ln q = -0,64 \cdot \ln R + b$$

Tabella 2 - Coefficiente b

Vmax (Km/h)	60	80	100	120	140
b	-0,244	0,51	1,23	1,50	1,74

EQUAZIONI E TABELLE

PER LE DISTANZE DI VISUALI LIBERE

Distanza di arresto

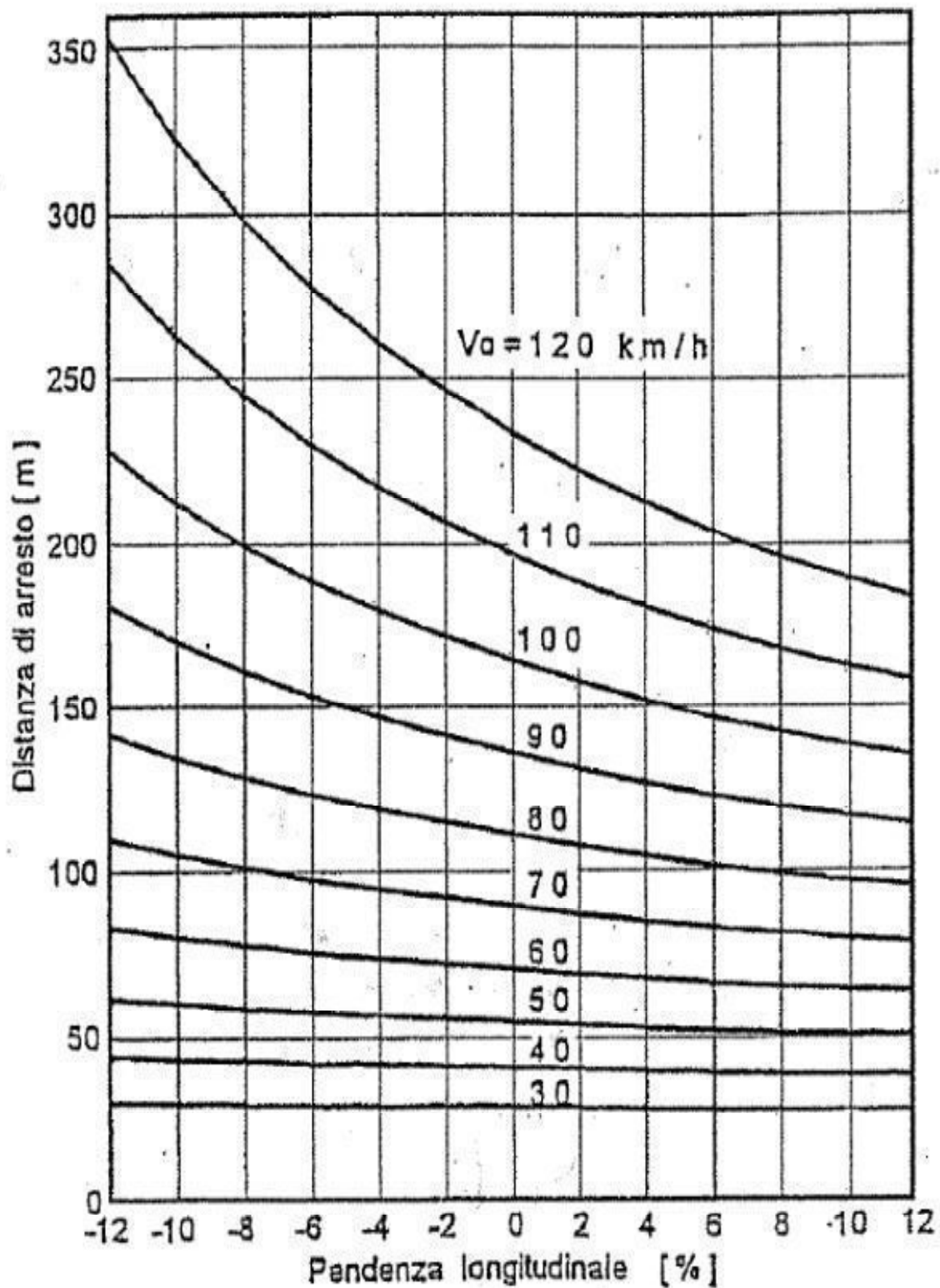


Figura 1 - Distanza di visibilità per l'arresto sulle strade ordinarie

(n.b.: esiste altro grafico per le autostrade)

EQUAZIONI E TABELLE

PER LA PROGETTAZIONE DELLE

CURVE DI TRANSITO

Parametro A

$$A = \sqrt[4]{24 \cdot R^3 \cdot \Delta r \cdot \left(1 + \frac{3}{14} \cdot \frac{\Delta r}{R}\right)}$$

Lunghezza del raccordo

$$L = \frac{A^2}{R}$$

Parametri adimensionali

$$l = \frac{L}{A} \qquad r = \frac{R}{A} \qquad \tau^c = \frac{L}{2 \cdot R} \cdot \frac{200}{\pi}$$

Criteri per la verifica del parametro A

$$\checkmark A \geq A_{\min} = 0,021 \cdot V^2$$

$$\checkmark A \geq A_{\min} = \sqrt{\frac{R_f \cdot 100 \cdot Bi \cdot (q_f + q_i)}{\Delta i_{\max}}}$$

$$\text{con} \quad \Delta i_{\max} = \frac{18 \cdot B_i}{V}$$

$$\checkmark A \geq A_{\min} = \frac{R}{3}$$

$$\checkmark A \leq A_{\max} = R$$

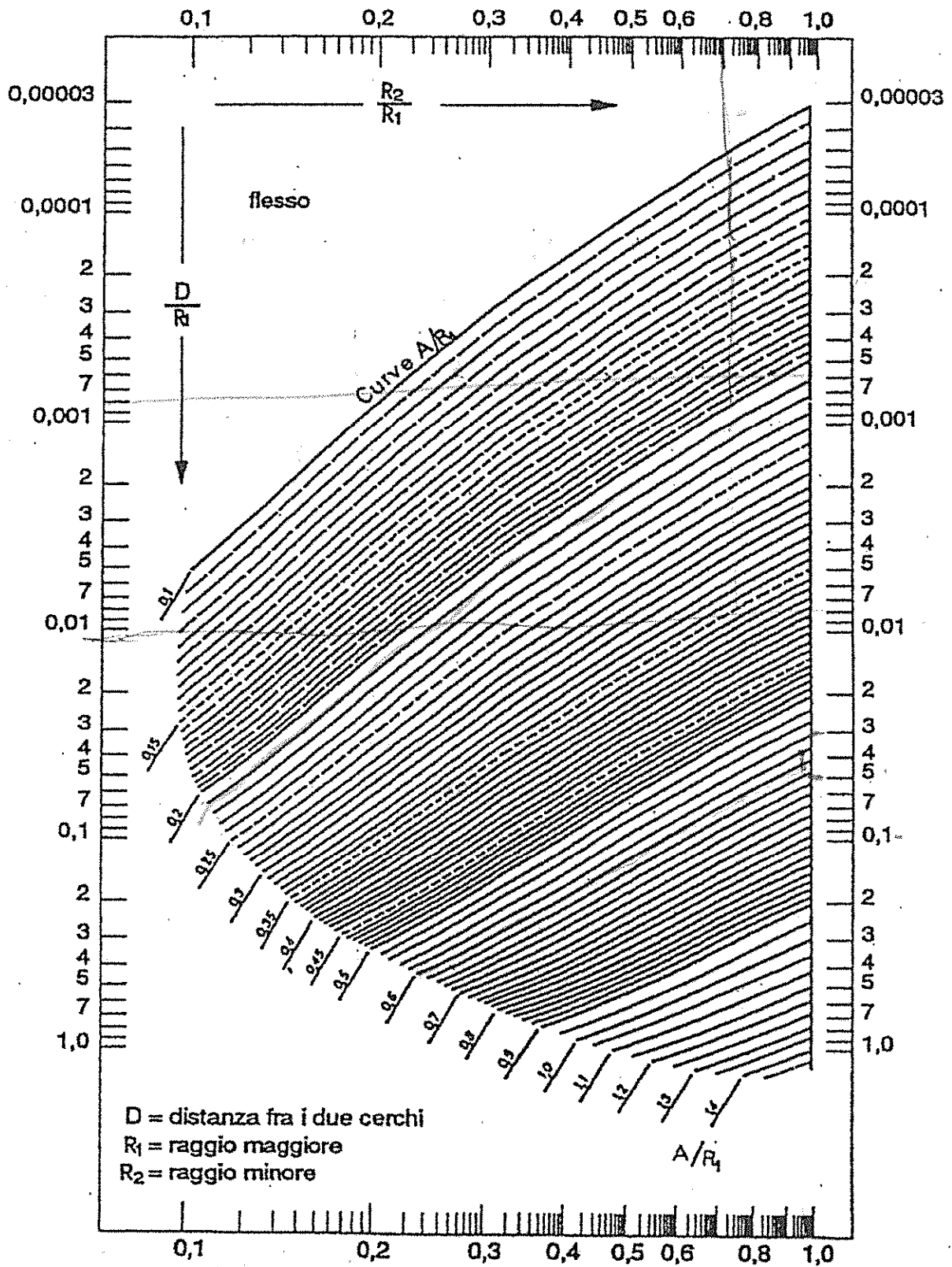
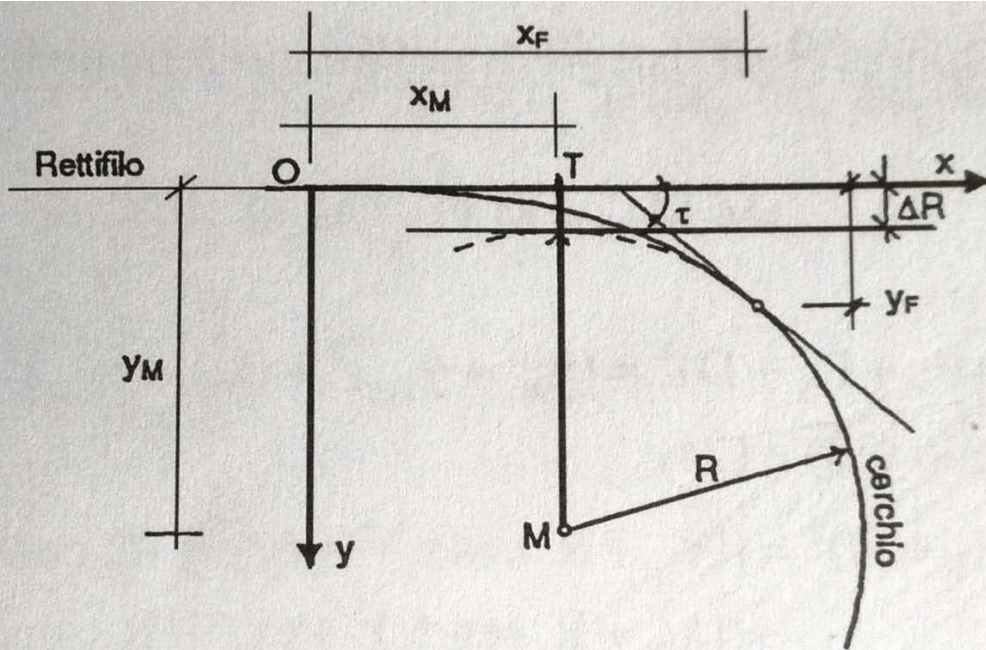


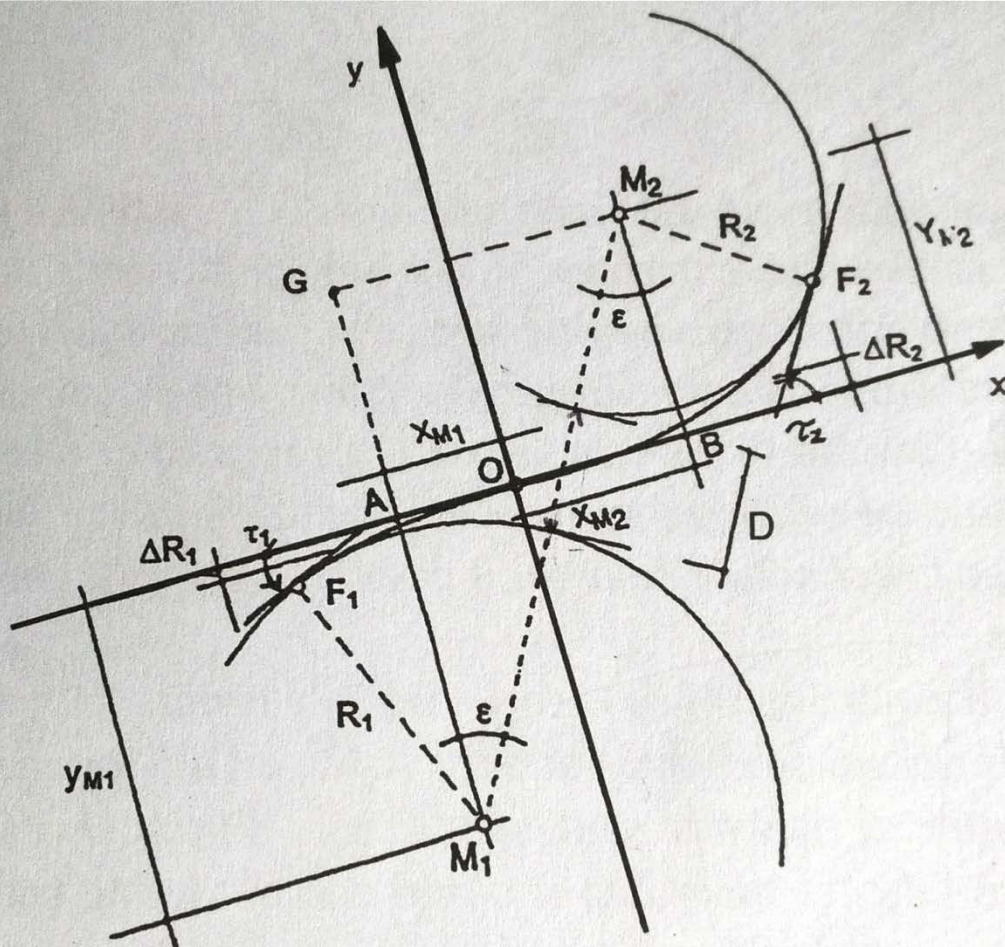
Figura 2 - Abaco per il calcolo del parametro di una clotoide di flesso

Angolo di rotazione

$$\varepsilon = \arctg \frac{X_{M1} + X_{M2}}{Y_{M1} + Y_{M2}}$$



Inserzione di una clotoide tra un cerchio ed un rettililo

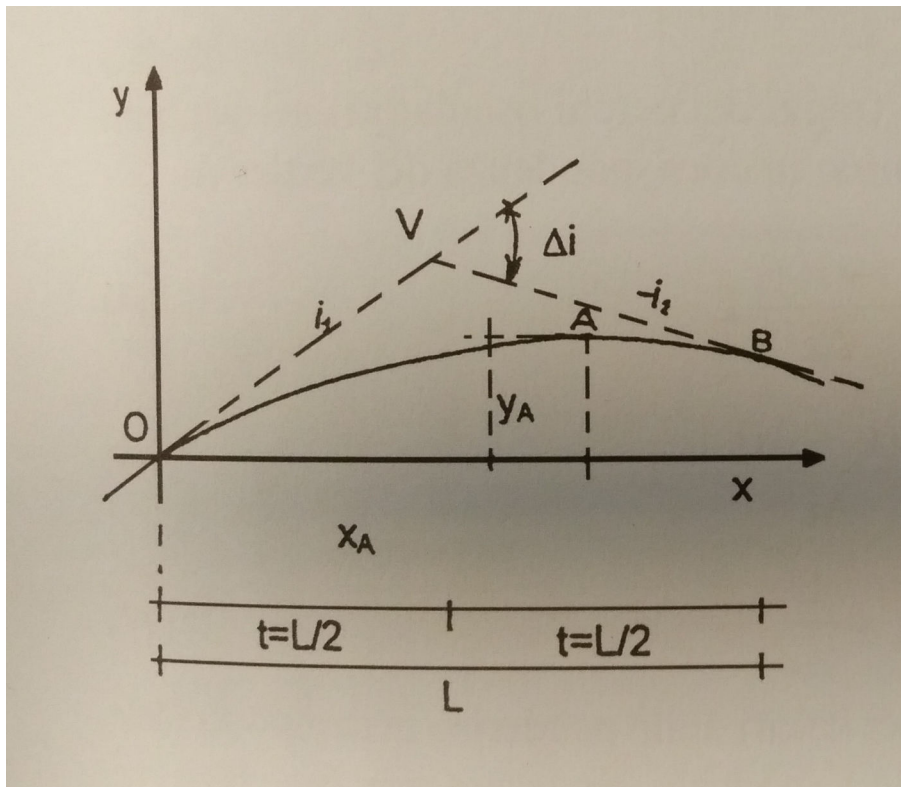


Inserzione di una clotoide di flessione

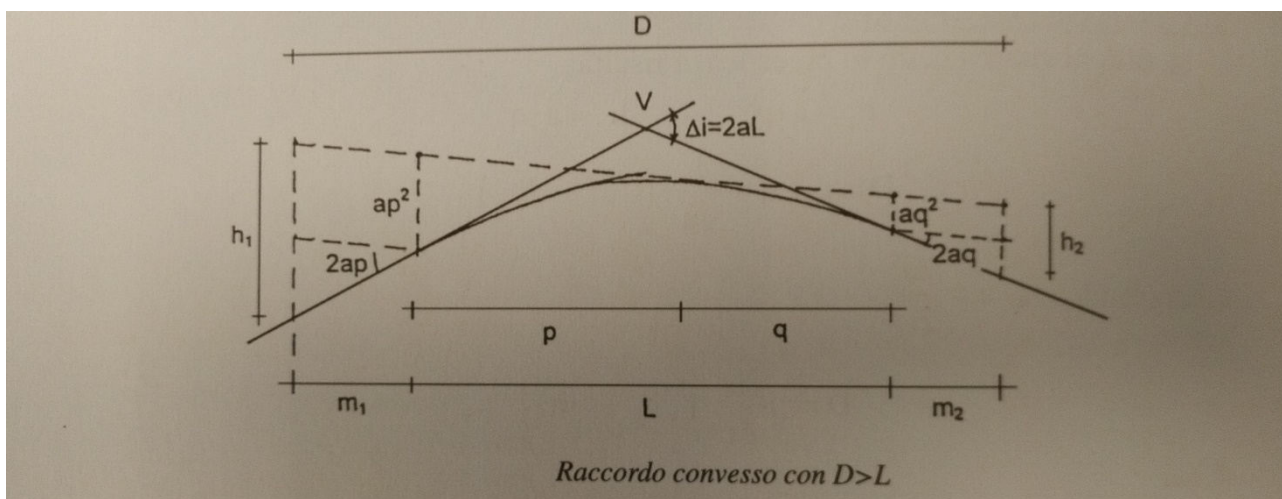
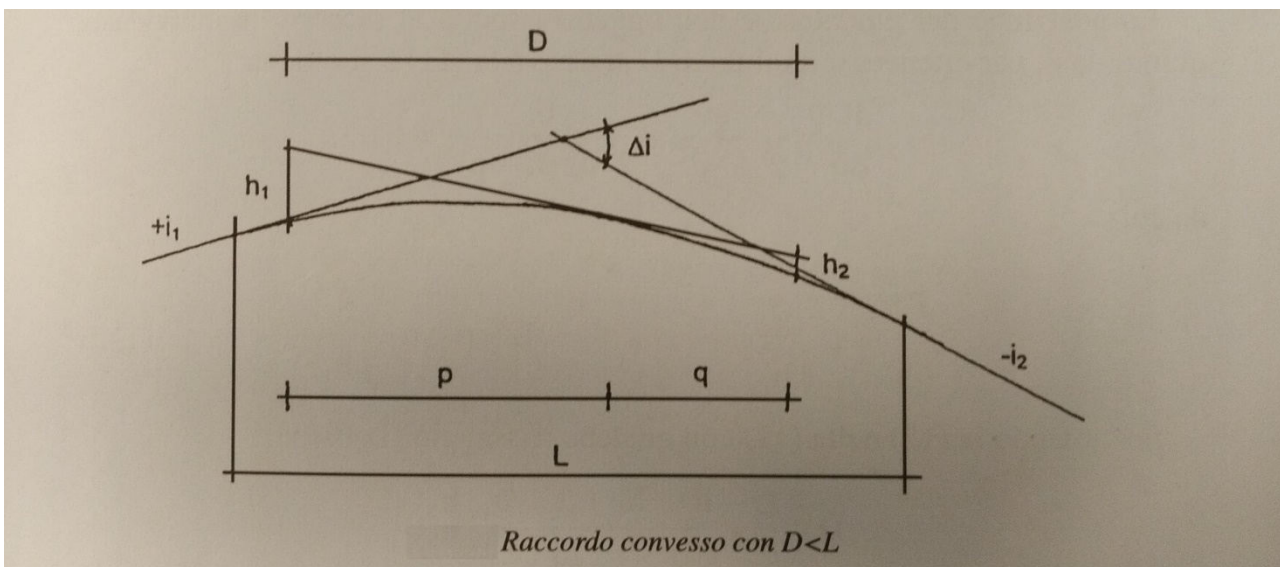
EQUAZIONI E TABELLE

PER LA PROGETTAZIONE DEI

RACCORDI VERTICALI



elementi geometrici dei raccordi parabolici convessi



Raccordi convessi

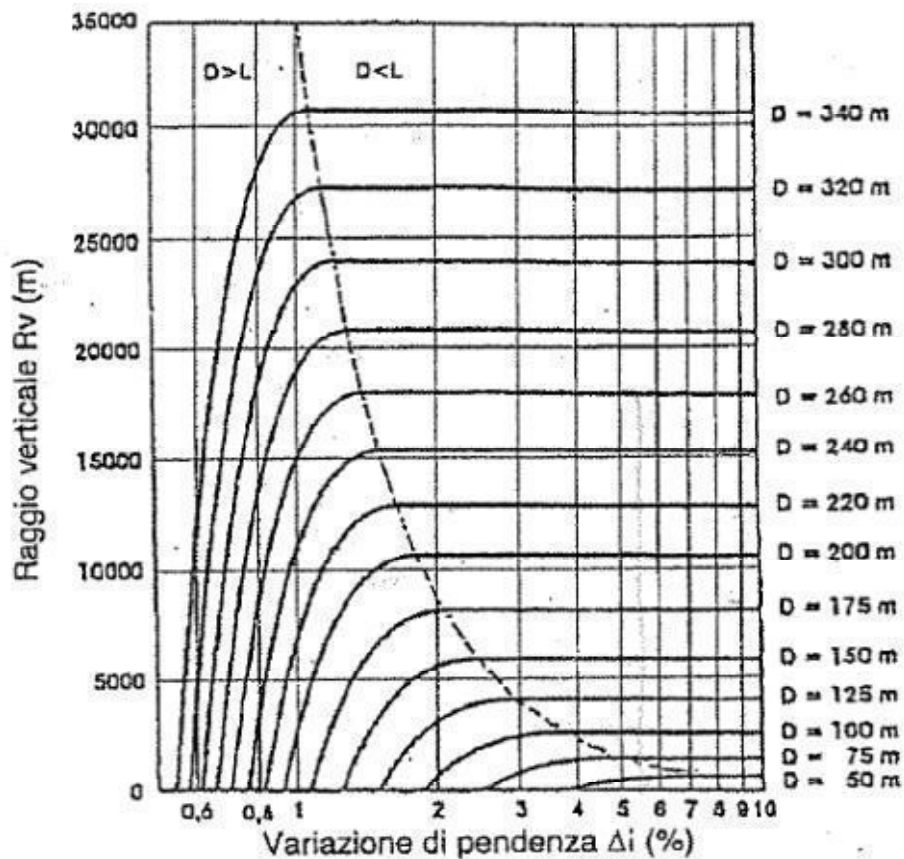


Figura 3 - Abaco per il calcolo dei raggi minimi di un raccordo convesso

(n.b.: $h_1 = 1,10$ m; $h_2 = 0,10$ m; $D = D_a$)

(esiste altro abaco per $h_1 = h_2 = 1,10$ m; $D = D_s$ nel caso di strade a due corsie con doppio senso di marcia)

D < L

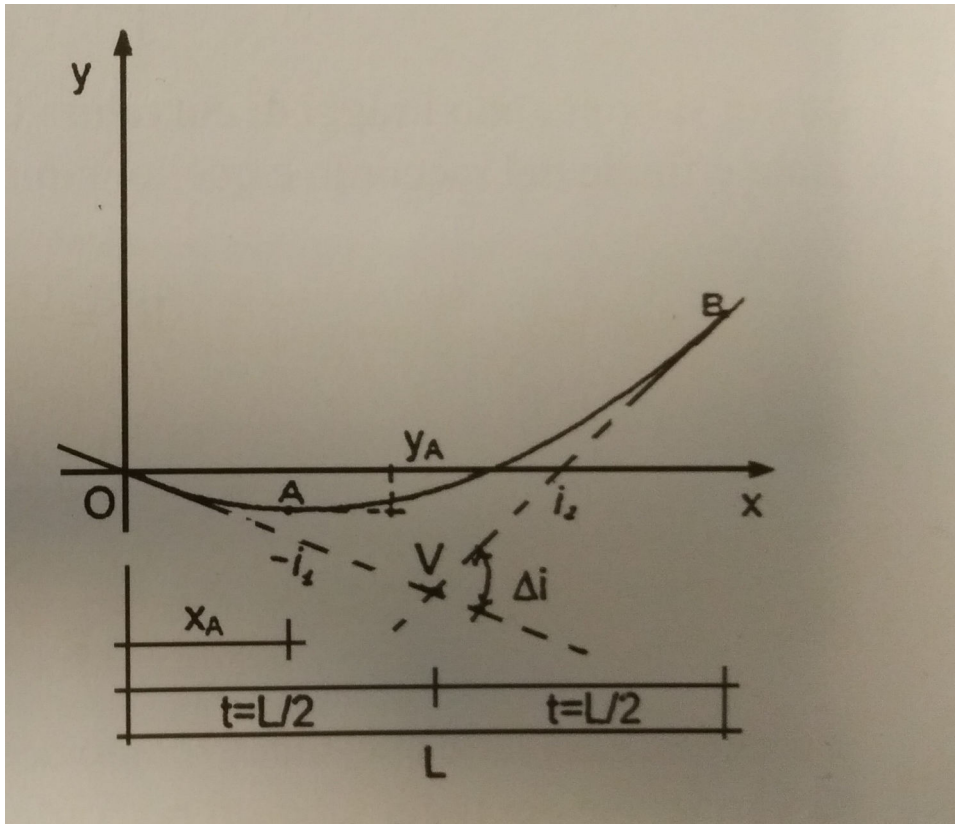
$$\checkmark L = \frac{\Delta i \cdot D^2}{2 \cdot (h_1 + h_2 + 2 \cdot \sqrt{h_1 \cdot h_2})}$$

$$\checkmark R_A = \frac{D^2}{2 \cdot (h_1 + h_2 + 2 \cdot \sqrt{h_1 \cdot h_2})}$$

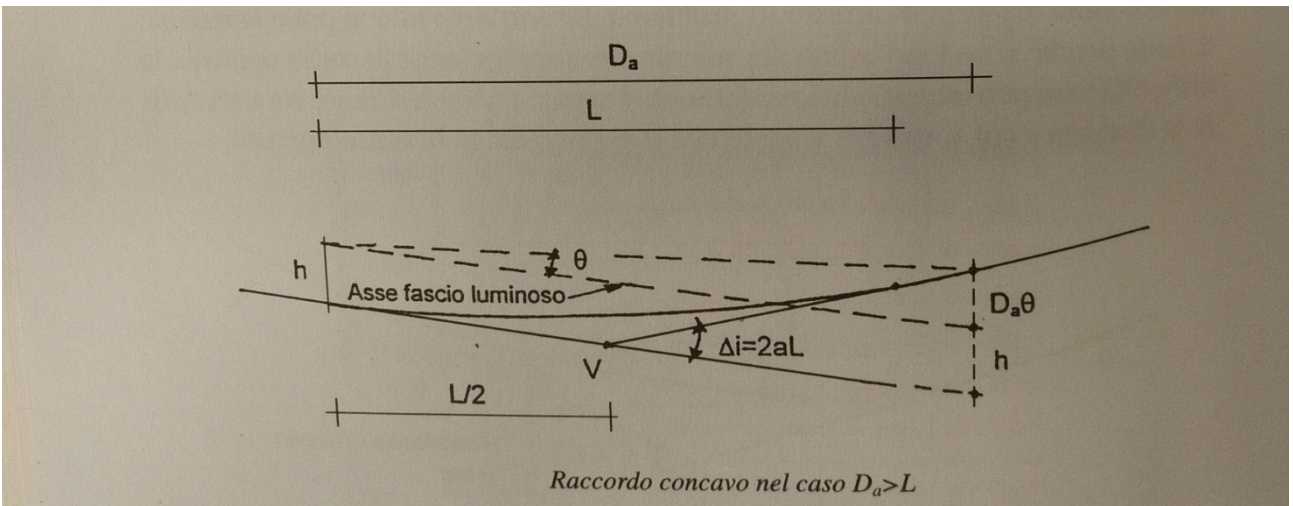
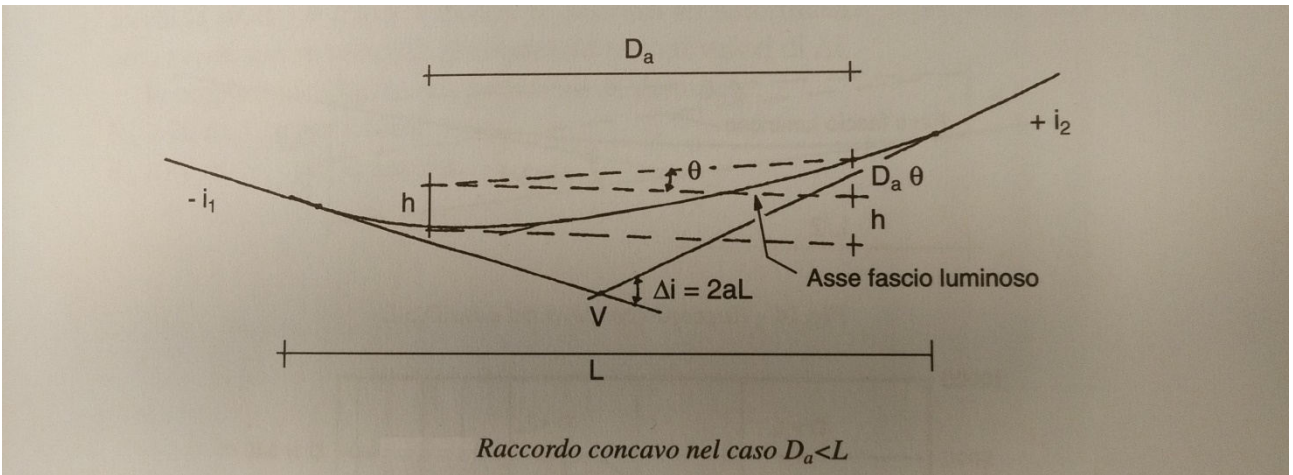
D > L

$$\checkmark L = 2 \cdot \left(D - \frac{h_1 + h_2 + 2 \cdot \sqrt{h_1 \cdot h_2}}{\Delta i} \right)$$

$$\checkmark R_A = \frac{2}{\Delta i} \cdot \left(D - \frac{h_1 + h_2 + 2 \cdot \sqrt{h_1 \cdot h_2}}{\Delta i} \right)$$



elementi geometrici dei raccordi parabolici concavi



Raccordi concavi

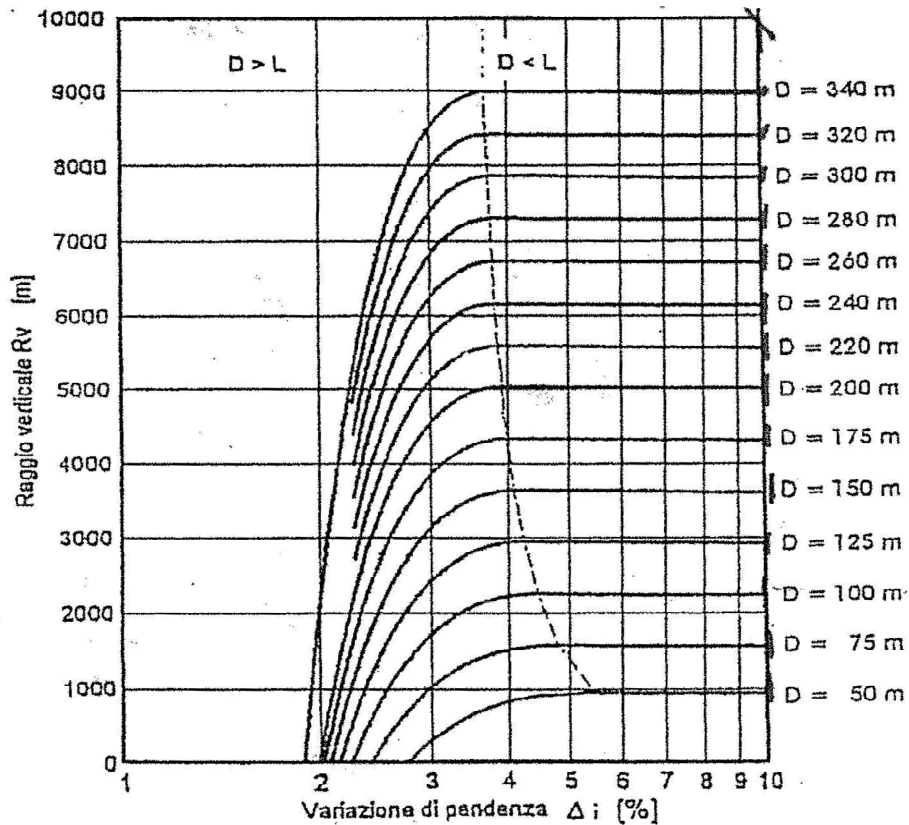


Figura 4 - Abaco per il calcolo dei raggi minimi di un raccordo concavo

(n.b.: $h = 0,5 \text{ m}$; $\vartheta = 1^\circ$; $D = D_a$)

D < L

$$\checkmark L = \frac{\Delta i \cdot D^2}{2 \cdot (h + D_a \cdot \vartheta)}$$

$$\checkmark R_A = \frac{D^2}{2 \cdot (h + D_a \cdot \vartheta)}$$

D > L

$$\checkmark L = 2 \cdot \left(D_a - \frac{h + D_a \cdot \vartheta}{\Delta i} \right)$$

$$\checkmark R_A = \frac{2}{\Delta i} \cdot \left(D_a - \frac{h + D_a \cdot \vartheta}{\Delta i} \right)$$

CARATTERIZZAZIONE GEOMETRICA

E FUNZIONALE DELLA PIATTAFORMA

TIPI SECONDO IL CODICE		AMBITO TERRITORIALE	LIMITE DI VELOCITA'	Numero delle corsie per senso di marcia	Intervallo di velocità di progetto		
					Limite inferiore (km/ora)	Limite superiore (km/ora)	
1	2	3	4	5	6	7	
AUTOSTRADA	A	EXTRAURBANO	strada principale	130	2 o più	90	140
			eventuale strada di servizio	90	1 o più	40	100
		URBANO	strada principale	130	2 o più	80	140
			eventuale strada di servizio	50	1 o più	40	60
EXTRAURBANA PRINCIPALE	B	EXTRAURBANO	strada principale	110	2 o più	70	120
			eventuale strada di servizio	90	1 o più	40	100
EXTRAURBANA SECONDARIA	C	EXTRAURBANO	C1	90	1	60	100
			C2	90	1	60	100
URBANA DI SCORRIMENTO	D	URBANO	strada principale	70	2 o più	50	80
			eventuale strada di servizio	50	1 o più	25	60
URBANA DI QUARTIERE	E	URBANO		50	1 o più	40	60
LOCALE	F	EXTRAURBANO	F1	90	1	40	100
			F2	90	1	40	100
		URBANO		50	1 o più	25	60

C₁ - F₁ = strada extraurbana a traffico sostenuto
C₂ - F₂ = strada extraurbana a traffico limitato

TAB. 3.4.a - COMPOSIZIONE DELLA CARREGGIATA

TIPI SECONDO IL CODICE		AMBITO TERRITORIALE		Larghezza min, dello spartitraffico (m)	Larghezza min, della banchina in sinistra (m)	Larghezza min, della banchina in destra (m)	Larghezza della corsia di emergenza (m)	
1	2	3		9	10	11	12	
AUTOSTRADA	A	EXTRAURBANO	strada principale	3,75	2,6	0,70	2,50 *****	3,00
			eventuale strada di servizio	3,50 **	-	0,50	1,25	-
		URBANO	strada principale	3,75	1,8	0,70	2,50 *****	3,00
			eventuale strada di servizio	3,00 [^] **	-	0,50	0,50	-
EXTRAURBANA PRINCIPALE	B	EXTRAURBANO	strada principale	3,75	2,50 ***	0,50	1,75	-
			eventuale strada di servizio	3,50 **	2,00 ****	0,50	1,25	-
EXTRAURBANA SECONDARIA	C	EXTRAURBANO	C1	3,75	-	-	1,50	-
			C2	3,50	-	-	1,25	-
URBANA DI SCORRIMENTO	D	URBANO	strada principale	3,25 [^]	1,8	0,50	1,00	-
			eventuale strada di servizio	2,75 **	-	0,50	0,50	-
URBANA DI QUARTIERE	E	URBANO		3,00 [^] **	-	-	0,50	-
LOCALE	F	EXTRAURBANO	F1	3,50	-	-	1,00	-
			F2	3,25	-	-	1,00	-
		URBANO		2,75 **	-	-	0,50	-
* m 3,50 per una corsia per senso di marcia, se strada percorsa da autobus. ** nel caso di una strada a senso unico con una sola corsia, la larghezza complessiva della corsia più le banchine deve essere non inferiore a 5,50 m, incrementando la corsia sino ad un massimo di m 3,75 e riportando la differenza sulla banchina in destra. *** per spartitraffico che ricade nel margine interno **** per spartitraffico che ricade nel margine laterale ***** in assenza di corsia di emergenza								

APPENDICE

TABELLE

CLOTOIDE UNITARIA

l	r	r^2	x	y	x_M	Δr	l_c	σ^2
0.010	100.000000	0.0031831	0.0100000	0.0000002	0.0050000	0.0000000	0.0100000	0.0010310
.020	50.000000	.0127324	.0200000	.0000013	.0100000	.0000003	.0200000	.0042441
.030	33.333333	.0286479	.0300000	.0000045	.0150000	.0000011	.0300000	.0095493
.040	25.000000	.0509296	.0400000	.0000107	.0200000	.0000027	.0400000	.0169765
.050	20.000000	.0795775	.0500000	.0000208	.0250000	.0000052	.0500000	.0265258
.060	16.666667	.1145916	.0600000	.0000360	.0300000	.0000090	.0600000	.0381972
.070	14.285714	.1559718	.0700000	.0000572	.0350000	.0000143	.0700000	.0519906
.080	12.500000	.2037183	.0799999	.0000853	.0400000	.0000213	.0800000	.0679061
.090	11.111111	.2578310	.0899999	.0001215	.0450000	.0000304	.0899999	.0859437
.100	10.000000	.3183099	.0999998	.0001667	.0500000	.0000417	.0999999	.1061033
.110	9.090909	.3851550	.1099996	.0002218	.0549999	.0000555	.1099998	.1283849
.120	8.333333	.4583662	.1199994	.0002860	.0599999	.0000720	.1199997	.1527887
.130	7.692308	.5379437	.1299991	.0003662	.0649998	.0000915	.1299996	.1793145
.140	7.142857	.6238874	.1399987	.0004573	.0699998	.0001143	.1399994	.2079623
.150	6.666667	.7161972	.1499981	.0005625	.0749997	.0001406	.1499992	.2387322
.160	6.250000	.8148733	.1599974	.0006827	.0799996	.0001707	.1599988	.2716241
.170	5.882353	.9199156	.1699965	.0008188	.0849994	.0002047	.1699984	.3056380
.180	5.555556	1.0313240	.1799953	.0009720	.0899992	.0002430	.1799979	.3437739
.190	5.263158	1.1490987	.1899938	.0011431	.0949990	.0002858	.1899972	.3830318
.200	5.000000	1.2732395	.1999920	.0013333	.0999987	.0003333	.1999964	.4244117
.210	4.761905	1.4037466	.2099898	.0015434	.1049983	.0003859	.2099955	.4679136
.220	4.545455	1.5406199	.2199871	.0017746	.1099979	.0004437	.2199943	.5135374
.230	4.347826	1.6838593	.2299839	.0020277	.1149973	.0005069	.2299929	.5612831
.240	4.166667	1.8334649	.2399801	.0023039	.1199967	.0005760	.2399912	.6111507
.250	4.000000	1.9894368	.2499756	.0026040	.1249959	.0006510	.2499891	.6631401
.260	3.846154	2.1517748	.2599703	.0029291	.1299950	.0007323	.2599868	.7172513
.270	3.703704	2.3204791	.2699641	.0032802	.1349940	.0008201	.2699841	.7734843
.280	3.571429	2.4955495	.2799570	.0036583	.1399928	.0009146	.2799809	.8318390
.290	3.448276	2.6769861	.2899487	.0040643	.1449915	.0010161	.2899772	.8923154
.300	3.333333	2.8647890	.2999393	.0044993	.1499899	.0011249	.2999730	.9549133
.310	3.225806	3.0589580	.3099294	.0049643	.1549881	.0012412	.3099682	1.0196327
.320	3.125000	3.2594932	.3199161	.0054603	.1599860	.0013652	.3199627	1.0864736
.330	3.030303	3.4663947	.3299022	.0059882	.1649837	.0014972	.3299565	1.1554359
.340	2.941176	3.6796623	.3398864	.0065491	.1699811	.0016375	.3399495	1.2265194
.350	2.857143	3.8992961	.3498687	.0071439	.1749781	.0017862	.3499416	1.2997241
.360	2.777778	4.1252961	.3598489	.0077737	.1799748	.0019437	.3599328	1.3750498
.370	2.702703	4.3576624	.3698267	.0084393	.1849711	.0021102	.3699230	1.4524965
.380	2.631579	4.5963948	.3798020	.0091419	.1899670	.0022859	.3799120	1.5320640
.390	2.564103	4.8414934	.3897745	.0098824	.1949624	.0024711	.3898998	1.6137521
.400	2.500000	5.0929582	.3997441	.0106618	.1999573	.0026661	.3998862	1.6975607
.410	2.439024	5.3507892	.4097105	.0114810	.2049517	.0028710	.4098713	1.7834897
.420	2.380952	5.6149864	.4196734	.0123411	.2099456	.0030861	.4198548	1.8715389
.430	2.325581	5.8859498	.4296326	.0132431	.2149388	.0033118	.4298367	1.9617080
.440	2.272727	6.1624794	.4395879	.0141878	.2199313	.0035481	.4398168	2.0539968
.450	2.222222	6.4457752	.4495389	.0151764	.2249231	.0037955	.4497950	2.1484052
.460	2.173913	6.7354372	.4594854	.0162097	.2299142	.0040540	.4597712	2.2449329
.470	2.127660	7.0314654	.4694270	.0172888	.2349045	.0043241	.4697452	2.3435797
.480	2.083333	7.3338598	.4793634	.0184145	.2398939	.0046058	.4797169	2.4443452
.490	2.040816	7.6426204	.4892943	.0195880	.2448823	.0048995	.4896862	2.5472292
.500	2.000000	7.9577472	.4992193	.0208101	.2498698	.0052054	.4996529	2.6522314

l	r	r^c	x	y	x_M	Δr	l_c	σ^c
.510	1.960784	8.2792402	.5091381	.0220818	.2548563	.0055238	.5096167	2.7593514
.520	1.923077	8.6070993	.5190503	.0234041	.2598417	.0058548	.5195777	2.8685890
.530	1.886792	8.9413247	.5289555	.0247779	.2648258	.0061988	.5295355	2.9799436
.540	1.851852	9.2819163	.5388532	.0262042	.2698088	.0065560	.5394900	3.0934150
.550	1.818182	9.6288741	.5487431	.0276839	.2747904	.0069266	.5494410	3.2090028
.560	1.785714	9.9821981	.5586247	.0292180	.2797707	.0073109	.5593883	3.3267064
.570	1.754386	10.3418882	.5684976	.0308074	.2847495	.0077091	.5693317	3.4465254
.580	1.724138	10.7079446	.5783613	.0324530	.2897267	.0081215	.5792710	3.5684594
.590	1.694915	11.0803672	.5882152	.0341558	.2947024	.0085482	.5892060	3.6925078
.600	1.666667	11.4591559	.5980589	.0359168	.2996763	.0089896	.5991364	3.8186701
.610	1.639344	11.8443108	.6078919	.0377367	.3046484	.0094459	.6090621	3.9469457
.620	1.612903	12.2358321	.6177136	.0396166	.3096187	.0099172	.6189827	4.0773341
.630	1.587302	12.6337194	.6275234	.0415574	.3145869	.0104040	.6288980	4.2098345
.640	1.562500	13.0379730	.6373209	.0435599	.3195531	.0109063	.6388077	4.3444463
.650	1.538462	13.4485927	.6471053	.0456251	.3245171	.0114245	.6487117	4.4811688
.660	1.515152	13.8655787	.6568760	.0477539	.3294789	.0119587	.6586096	4.6200014
.670	1.492537	14.2889308	.6666326	.0499471	.3344382	.0125093	.6685011	4.7609432
.680	1.470588	14.7186492	.6763742	.0522056	.3393951	.0130764	.6783859	4.9039934
.690	1.449275	15.1547337	.6861002	.0545303	.3443493	.0136602	.6882638	5.0491512
.700	1.428571	15.5971845	.6958099	.0569220	.3493009	.0142611	.6981343	5.1954157
.710	1.408451	16.0460014	.7055027	.0593817	.3542496	.0148729	.7079973	5.3457861
.720	1.388889	16.5011845	.7151777	.0619101	.3591953	.0155147	.7178524	5.4972613
.730	1.369863	16.9627339	.7248343	.0645081	.3641379	.0161680	.7276992	5.6508404
.740	1.351351	17.4306494	.7344717	.0671765	.3690773	.0168392	.7375374	5.8065224
.750	1.333333	17.9049311	.7440891	.0699162	.3740134	.0175285	.7473666	5.9643061
.760	1.315789	18.3955791	.7536856	.0727280	.3789460	.0182363	.7571865	6.1241904
.770	1.298701	18.8725932	.7632605	.0756125	.3838749	.0189626	.7669967	6.2861741
.780	1.282051	19.3659735	.7728129	.0785708	.3888001	.0197078	.7767967	6.4502561
.790	1.265823	19.8657200	.7823420	.0816034	.3937214	.0204720	.7865863	6.6164351
.800	1.250000	20.3718328	.7918467	.0847112	.3986388	.0212555	.7963650	6.7847096
.810	1.234568	20.8843117	.8013264	.0878950	.4035515	.0220585	.8061324	6.9550785
.820	1.219512	21.4031568	.8107799	.0911554	.4084601	.0228811	.8158881	7.1275402
.830	1.204819	21.9283681	.8202063	.0944933	.4133641	.0237238	.8256315	7.3020932
.840	1.190476	22.4599456	.8296048	.0979092	.4182635	.0245865	.8353624	7.4787360
.850	1.176471	22.9978893	.8389742	.1014040	.4231579	.0254696	.8450801	7.6574671
.860	1.162791	23.5421992	.8483135	.1049783	.4280473	.0263733	.8547844	7.8382847
.870	1.149425	24.0928753	.8576218	.1086328	.4329315	.0272977	.8644746	8.0218171
.880	1.136364	24.6499176	.8668980	.1123682	.4378103	.0282431	.8741503	8.2061727
.890	1.123596	25.2133261	.8761409	.1161850	.4426834	.0292097	.8838109	8.3932394
.900	1.111111	25.7831008	.8853494	.1200839	.4475508	.0301977	.8934561	8.5823854
.910	1.098901	26.3592417	.8945225	.1241656	.4524122	.0312072	.9030852	8.7736088
.920	1.086957	26.9417488	.9036590	.1281305	.4572674	.0322386	.9126977	8.9559074
.930	1.075269	27.5306221	.9127577	.1322793	.4621163	.0332919	.9222931	9.1622793
.940	1.063830	28.1256616	.9218175	.1365126	.4669586	.0343074	.9318708	9.3597220
.950	1.052632	28.7273673	.9308370	.1408309	.4717941	.0354653	.9414302	9.5592335
.960	1.041667	29.3351392	.9398151	.1452346	.4766226	.0366557	.9509708	9.7608114
.970	1.030928	29.9497773	.9487515	.1497243	.4814439	.0377289	.9604920	9.9544532
.980	1.020408	30.5784815	.9576419	.1543005	.4862577	.0388949	.9699932	10.1701565
.990	1.010104	31.1975520	.9664881	.1589636	.4910639	.0400841	.9794737	10.3779135
1.000	1.000000	31.8309887	.9752877	.1637140	.4958622	.0412966	.9889329	10.5877370

l	r	r ^c	x	y	x _m	Δr	l _c	σ ^c
1.010	.990099	32.4787916	.9840393	.1685522	.5006523	.0425325	.9983703	10.7995033
1.020	.980392	33.1167606	0.9927416	.1734786	.5054341	.0437921	1.0077851	11.0135312
1.030	.970874	33.7694959	1.0013932	.1784934	.5102073	.0450755	1.0171767	11.2295013
1.040	.961538	34.4285974	1.0099927	.1835971	.5149716	.0463828	1.0265443	11.4475160
1.050	.952381	35.0936650	1.0185387	.1887990	.5197268	.0477143	1.0358874	11.6675723
1.060	.943396	35.7652989	1.0270297	.1940723	.5244727	.0490700	1.0452052	11.8895570
1.070	.934579	36.4432990	1.0354642	.1994443	.5292089	.0504502	1.0544971	12.1137966
1.080	.925926	37.1276652	1.0438407	.2049062	.5339353	.0518550	1.0637622	12.3399579
1.090	.917431	37.8183977	1.0521578	.2104583	.5386515	.0532845	1.0729998	12.5681473
1.100	.909091	38.5151963	1.0604138	.2161007	.5433574	.0547390	1.0822093	12.7983612
1.110	.900901	39.2189612	1.0686073	.2218336	.5480525	.0562184	1.0913898	13.0305958
1.120	.892857	39.9287922	1.0767366	.2276570	.5527366	.0577231	1.1005405	13.2648473
1.130	.884956	40.6449895	1.0848002	.2335712	.5574095	.0592530	1.1096608	13.5011118
1.140	.877193	41.3676529	1.0927965	.2395761	.5620709	.0608084	1.1187497	13.7393852
1.150	.869565	42.0969826	1.1007238	.2456717	.5667204	.0623893	1.1278065	13.9796634
1.160	.862069	42.8317784	1.1085804	.2518582	.5713578	.0639959	1.1368303	14.2219419
1.170	.854701	43.5734404	1.1163648	.2581353	.5759828	.0656284	1.1458203	14.4662164
1.180	.847458	44.3211697	1.1240752	.2645031	.5805950	.0672867	1.1547757	14.7124823
1.190	.840336	45.0758631	1.1317099	.2709614	.5851942	.0689711	1.1636956	14.9607350
1.200	.833333	45.8366237	1.1392673	.2775101	.5897800	.0706815	1.1725791	15.2109696
1.210	.826446	46.6037506	1.1467455	.2841490	.5943522	.0724182	1.1814253	15.4631811
1.220	.819672	47.3772436	1.1541428	.2908779	.5989104	.0741812	1.1902334	15.7173645
1.230	.813008	48.1571028	1.1614575	.2976966	.6034543	.0759707	1.1990024	15.9735146
1.240	.806452	48.9435282	1.1686877	.3046047	.6079835	.0777866	1.2077314	16.2316260
1.250	.800000	49.7359198	1.1758348	.3116019	.6124978	.0796290	1.2164194	16.4916931
1.260	.793651	50.5348777	1.1828879	.3186879	.6169967	.0814982	1.2250655	16.7537103
1.270	.787402	51.3402010	1.1898540	.3258623	.6214801	.0833940	1.2336688	17.0176717
1.280	.781250	52.1518919	1.1967285	.3331245	.6259474	.0853165	1.2422282	17.2835714
1.290	.775194	52.9697483	1.2035095	.3404741	.6303984	.0872660	1.2507429	17.5514032
1.300	.769231	53.7945709	1.2101951	.3479105	.6348327	.0892423	1.2592116	17.8211603
1.310	.763359	54.6251597	1.2167835	.3554333	.6392500	.0912455	1.2676336	18.0923377
1.320	.757576	55.4623147	1.2232728	.3630417	.6436499	.0932757	1.2760077	18.3554273
1.330	.751880	56.3055359	1.2296610	.3707351	.6480321	.0953329	1.2843328	18.6204923
1.340	.746269	57.1557233	1.2359464	.3785128	.6523961	.0974171	1.2926080	18.88759170
1.350	.740749	58.0119769	1.2421270	.3863740	.6567416	.0995284	1.3008322	19.1568029
1.360	.735294	58.8745967	1.2482010	.3943179	.6610683	.1016667	1.3090043	19.4279731
1.370	.729927	59.7435827	1.2541663	.4023437	.6653758	.1038321	1.3171232	19.70128199
1.380	.724638	60.6189349	1.2600211	.4104505	.6696637	.1060245	1.3251878	20.0477356
1.390	.719424	61.5006533	1.2657635	.4186373	.6739316	.1082440	1.3331971	20.3345123
1.400	.714286	62.3887378	1.2713915	.4269031	.6781791	.1104906	1.3411498	20.6231417
1.410	.709220	63.2831886	1.2769033	.4352468	.6824059	.1127642	1.3490448	20.9136155
1.420	.704225	64.1840056	1.2822969	.4436675	.6866116	.1150648	1.3568810	21.2059250
1.430	.699301	65.0911888	1.2875704	.4521639	.6907957	.1173924	1.3646573	21.5000615
1.440	.694444	66.0047382	1.2927218	.4607349	.6949580	.1197429	1.3723725	21.7960158
1.450	.689655	66.9246537	1.2977493	.4693791	.6990979	.1221283	1.3800253	22.0937787
1.460	.684932	67.8509355	1.3026509	.4780953	.7032151	.1245366	1.3876146	22.3933407
1.470	.680272	68.7835835	1.3074247	.4868822	.7073092	.1269716	1.3951393	22.6945920
1.480	.675676	69.7225976	1.3120689	.4957382	.7113798	.1294333	1.4025980	22.9978226
1.490	.671141	70.6679780	1.3165815	.5046621	.7154265	.1319216	1.4099895	23.3027223
1.500	.666667	71.6197246	1.3209606	.5136521	.7194488	.1344365	1.4173127	23.6093804

l	r	r ^c	x	Y	x _M	Δr	l _c	σ ^c
1.505	.664452	72.0979852	1.3230995	.5181715	.7214508	.1357038	1.4209483	23.7633656
1.510	.662252	72.5779373	1.3252044	.5227069	.7234465	.1369778	1.4245663	23.9177863
1.515	.661066	73.0592810	1.3272749	.5272580	.7254359	.1382583	1.4281665	24.0726412
1.520	.657895	73.5425163	1.3293109	.5318247	.7274190	.1395454	1.4317489	24.2279289
1.525	.655738	74.0269431	1.3313122	.5364064	.7293957	.1408391	1.4353133	24.3836479
1.530	.653595	74.5131614	1.3332785	.5410038	.7313660	.1421393	1.4388595	24.5397963
1.535	.651466	75.0009713	1.3352095	.5456159	.7333298	.1434461	1.4423873	24.6963741
1.540	.649354	75.4903728	1.3371051	.5502426	.7352870	.1447593	1.4458966	24.8533784
1.545	.647249	75.9813658	1.3389650	.5548838	.7372377	.1460791	1.4493872	25.0108081
1.550	.645161	76.4739503	1.3407890	.5595392	.7391817	.1474053	1.4528590	25.1686618
1.555	.643087	76.9681264	1.3425768	.5642086	.7411190	.1487380	1.4563117	25.3239373
1.560	.641026	77.4638941	1.3443283	.5688918	.7430495	.1500771	1.4597454	25.4856348
1.565	.638978	77.9612533	1.3460432	.5735885	.7449733	.1514227	1.4631596	25.6447510
1.570	.636943	78.4602040	1.3477213	.5782985	.7468902	.1527747	1.4665544	25.8042848
1.575	.634921	78.9607463	1.3493624	.5830215	.7488002	.1541330	1.4699296	25.9642348
1.580	.632911	79.4628802	1.3509663	.5877572	.7507033	.1554978	1.4732849	26.1245991
1.585	.630915	79.9666056	1.3525327	.5925055	.7525994	.1568688	1.4766203	26.2853763
1.590	.628931	80.4719225	1.3540614	.5972661	.7544884	.1582462	1.4799355	26.4465645
1.595	.626959	80.9783310	1.3555522	.6020387	.7563702	.1596300	1.4832303	26.6081622
1.600	.625000	81.4875314	1.3570049	.6068230	.7582450	.1610200	1.4865047	26.7701676
1.605	.623053	81.9974227	1.3584193	.6116187	.7601125	.1624162	1.4897585	26.9325789
1.610	.621119	82.5091058	1.3597951	.6164257	.7619727	.1638187	1.4929914	27.0953944
1.615	.619195	83.0225805	1.3611322	.6212436	.7638256	.1652274	1.4962034	27.2586124
1.620	.617284	83.5372467	1.3624304	.6260721	.7656712	.1666423	1.4993941	27.4222310
1.625	.615385	84.0537045	1.3636894	.6309118	.7675093	.1680634	1.5025636	27.5862483
1.630	.613497	84.5717839	1.3649090	.6357699	.7693400	.1694906	1.5057116	27.7506626
1.635	.611621	85.0913948	1.3660891	.6406186	.7711631	.1709239	1.5088379	27.9154720
1.640	.609756	85.6126272	1.3672295	.6454869	.7729787	.1723634	1.5119424	28.0806745
1.645	.607903	86.1358512	1.3683298	.6503643	.7747866	.1738088	1.5150248	28.2452684
1.650	.606061	86.6598667	1.3693901	.6552505	.7765868	.1752503	1.5180851	28.41122515
1.655	.604230	87.1858738	1.3704099	.6601454	.7783793	.1767179	1.5211231	28.5786220
1.660	.602410	87.7134725	1.3713893	.6650486	.7801640	.1781814	1.5241385	28.7453779
1.665	.600601	88.2426626	1.3723279	.6699596	.7819409	.1796508	1.5271312	28.9125171
1.670	.599802	88.7734444	1.3732256	.6748784	.7837099	.1811261	1.5301011	29.0800377
1.675	.597015	89.3058177	1.3740822	.6798045	.7854709	.1826074	1.5330479	29.2479375
1.680	.595238	89.8397825	1.3748975	.6847375	.7972239	.1840945	1.5359715	29.4152145
1.685	.593472	90.3756389	1.3756713	.6896773	.7889689	.1855874	1.5388717	29.5848665
1.690	.591716	90.9124868	1.3764035	.6946233	.7907058	.1870864	1.5417484	29.7538915
1.695	.589971	91.4512263	1.3770939	.6995754	.7924346	.1885906	1.5446013	29.9232872
1.700	.588235	91.9915576	1.3777422	.7045332	.7941551	.1901007	1.5474304	30.0930514
1.705	.586510	92.5333979	1.3783484	.7094963	.7958674	.1916166	1.5502353	30.2631820
1.710	.584795	93.0769941	1.3789123	.7144644	.7975714	.1931381	1.5530160	30.4336766
1.715	.583090	93.6220997	1.3794337	.7194374	.7992671	.1946653	1.5557722	30.5045331
1.720	.581395	94.1687970	1.3799124	.7244141	.8009543	.1961980	1.5585038	30.7757490
1.725	.579710	94.7170857	1.3803483	.7293951	.8026331	.1977363	1.5612107	30.9473221
1.730	.578035	95.2669661	1.3807413	.7343796	.8043034	.1992801	1.5638925	31.1192500
1.735	.576369	95.8184380	1.3810911	.7393673	.8059651	.2008294	1.5665493	31.2915303
1.740	.574713	96.3715014	1.3813976	.7443579	.8076182	.2023840	1.5691807	31.4641607
1.745	.573066	96.9261564	1.3816607	.7493510	.8092626	.2039441	1.5717866	31.5371385
1.750	.571429	97.4824029	1.3818802	.7543461	.8108984	.2055096	1.5743663	31.8104614

l	r	r ^c	x	Y	X _M	Δr	l _c	σ ^c
1.755	.569801	98.0402410	1.3820560	.7593430	.8125254	.2070803	1.5769212	31.9841268
1.760	.568182	98.5995706	1.3821879	.7643413	.8141436	.2086564	1.5794496	32.1581322
1.765	.566572	99.1606918	1.3822759	.7693405	.8157529	.2102376	1.5819518	32.3324750
1.770	.564972	99.7235045	1.3823197	.7743403	.8173533	.2118241	1.5844276	32.5071526
1.775	.563380	100.2875088	1.3823193	.7793403	.8189448	.2134157	1.5868768	32.6821624
1.780	.561798	100.8535046	1.3822745	.7843400	.8205272	.2150124	1.5892993	32.8575016
1.785	.560224	101.4206920	1.3821852	.7893392	.8221006	.2166141	1.5916948	33.0331677
1.790	.558659	101.9896709	1.3820513	.7943374	.8236650	.2182209	1.5940633	33.2091573
1.795	.557083	102.5602414	1.3818727	.7993342	.8252201	.2198326	1.5964045	33.3854691
1.800	.555556	103.1321034	1.3816493	.8043292	.8267661	.2214493	1.5987183	33.5620989
1.805	.554017	103.7061570	1.3813808	.8093220	.8283028	.2230708	1.6010044	33.7390443
1.810	.552486	104.2815021	1.3810674	.8143121	.8298302	.2246972	1.6032627	33.9163025
1.815	.550964	104.8584387	1.3807088	.8192992	.8313483	.2263284	1.6054931	34.0938704
1.820	.549454	105.4369670	1.3803049	.8242829	.8328570	.2279642	1.6076952	34.2717452
1.825	.547945	106.0170867	1.3798558	.8292616	.8343562	.2296048	1.6098691	34.4499239
1.830	.546448	106.5987980	1.3793612	.8342381	.8358460	.2312500	1.6120144	34.6234034
1.835	.544959	107.1821009	1.3788210	.8392088	.8373262	.2328998	1.6141310	34.8071806
1.840	.543478	107.7669953	1.3782354	.8441744	.8387969	.2345541	1.6162188	34.9862525
1.845	.542005	108.3534813	1.3776040	.8491343	.8402579	.2362130	1.6182775	35.1656160
1.850	.540541	108.9415588	1.3769269	.8540883	.8417093	.2378762	1.6203069	35.3452677
1.855	.539084	109.5312279	1.3762042	.8590357	.8431510	.2395438	1.6223070	35.5252046
1.860	.537634	110.1224886	1.3754353	.8639763	.8445829	.2412158	1.6242775	35.7054233
1.865	.536193	110.7153407	1.3746207	.8689094	.8460050	.2428920	1.6262182	35.8859205
1.870	.534759	111.3097844	1.3737601	.8738348	.8474173	.2445724	1.6281290	36.0666929
1.875	.533333	111.9058196	1.3728535	.8787519	.8488197	.2462570	1.6300097	36.2477371
1.880	.531915	112.5038465	1.3719009	.8836603	.8502121	.2479457	1.6318601	36.4290497
1.885	.530504	113.1026648	1.3709020	.8885595	.8515946	.2496384	1.6336800	36.6106271
1.890	.529101	113.7034747	1.3698571	.8934491	.8529671	.2513352	1.6354693	36.7924659
1.895	.527704	114.3058672	1.3687661	.8983285	.8543295	.2530358	1.6372278	36.9745624
1.900	.526316	114.9098692	1.3676288	.9031975	.8556817	.2547404	1.6389552	37.1569131
1.905	.524934	115.5154538	1.3664454	.9080554	.8570239	.2564488	1.6406516	37.3395144
1.910	.523560	116.1226299	1.3652157	.9129018	.8583559	.2581609	1.6423165	37.5223625
1.915	.522193	116.7313975	1.3639398	.9177363	.8596776	.2598767	1.6439500	37.7054536
1.920	.520833	117.3417567	1.3626177	.9225583	.8609891	.2615962	1.6455518	37.8887839
1.925	.519481	117.9537075	1.3612494	.9273674	.8622902	.2633192	1.6471211	38.0723497
1.930	.518135	118.5672498	1.3598348	.9321631	.8635811	.2650457	1.6486596	38.2551567
1.935	.516796	119.1825837	1.3583740	.9369449	.8648615	.2667757	1.6501653	38.4401717
1.940	.515464	119.7991091	1.3568670	.9417124	.8661315	.2685091	1.6516387	38.6244200
1.945	.514139	120.4171260	1.3553139	.9464650	.8673910	.2702458	1.6530794	38.8088879
1.950	.512821	121.0375345	1.3537146	.9512023	.8686401	.2719858	1.6544875	38.9935711
1.955	.511509	121.6588346	1.3520691	.9559238	.8698786	.2737290	1.6558627	39.1784655
1.960	.510204	122.2819262	1.3503777	.9606290	.8711065	.2754753	1.6572048	39.3635669
1.965	.508906	122.9066093	1.3486412	.9653173	.8723238	.2772246	1.6585137	39.5488711
1.970	.507614	123.5325841	1.3468567	.9699884	.8735305	.2789770	1.6597893	39.7343738
1.975	.506329	124.1607503	1.3450272	.9746417	.8747265	.2807323	1.6610312	39.9200704
1.980	.505051	124.7902081	1.3431520	.9792767	.8759118	.2824904	1.6622395	40.1059567
1.985	.503778	125.4212574	1.3412309	.9838929	.8770863	.2842514	1.6634138	40.2920281
1.990	.502513	126.0538983	1.3392641	.9884898	.8782500	.2860151	1.6645541	40.4782800
1.995	.501253	126.6881308	1.3372517	.9930669	.8794029	.2877814	1.6656602	40.6647079
2.000	.500000	127.3239548	1.3351937	.9976237	.8805450	.2895503	1.6667319	40.8513071

l	r	r ^c	x	Y	x _m	Δr	l _c	σ ^c
2.005	.498753	127.9615703	1.3330902	1.0024597	.8816762	.2913217	1.6677691	41.0380728
2.010	.497512	128.6008774	1.3309414	1.0066744	.8827964	.2930956	1.6687715	41.2250003
2.015	.496278	129.2409761	1.3287473	1.0111673	.8839057	.2948718	1.6697391	41.4120347
2.020	.495050	129.8831663	1.3265081	1.0156378	.8850041	.2966504	1.6706717	41.5993210
2.025	.493827	130.5269480	1.3242238	1.0200855	.8860914	.2984312	1.6715691	41.7867043
2.030	.492611	131.1725213	1.3218947	1.0245098	.8871677	.3002141	1.6724311	41.9742295
2.035	.491400	131.8192862	1.3195207	1.0289103	.8882329	.3019991	1.6732576	42.1618915
2.040	.490196	132.4678426	1.3171021	1.0332863	.8892870	.3037861	1.6740485	42.3496851
2.045	.488998	133.1179905	1.3146389	1.0376375	.8903300	.3055751	1.6748036	42.5376051
2.050	.487805	133.7697300	1.3121314	1.0419633	.8913619	.3073659	1.6755227	42.7256460
2.055	.486618	134.4230610	1.3095797	1.0462631	.8923825	.3091584	1.6762057	42.9138026
2.060	.485437	135.0779836	1.3069840	1.0505365	.8933920	.3109527	1.6768524	43.1020693
2.065	.484262	135.7341978	1.3043444	1.0547829	.8943902	.3127486	1.6774627	43.2904406
2.070	.483092	136.3926035	1.3016610	1.0590019	.8953772	.3145461	1.6780365	43.4789109
2.075	.481928	137.0525009	1.2989342	1.0631928	.8963530	.3163450	1.6785735	43.6674745
2.080	.480769	137.7136895	1.2961640	1.0673553	.8973174	.3181453	1.6790737	43.8561257
2.085	.479616	138.3764698	1.2933507	1.0714887	.8982705	.3199469	1.6795368	44.0448585
2.090	.478469	139.0409417	1.2904944	1.0755925	.8992122	.3217498	1.6799628	44.2336670
2.095	.477327	139.7070052	1.2875954	1.0796663	.9001426	.3235538	1.6803516	44.4225453
2.100	.476190	140.3746602	1.2846539	1.0837095	.9010617	.3253589	1.6807028	44.6114872
2.105	.475059	141.0439067	1.2816712	1.0877216	.9019693	.3271650	1.6810165	44.8004865
2.110	.473934	141.7147448	1.2786443	1.0917020	.9028655	.3289720	1.6812925	44.9895371
2.115	.472813	142.3871744	1.2755766	1.0956583	.9037502	.3307798	1.6815307	45.1786326
2.120	.471698	143.0611956	1.2724674	1.0995660	.9046235	.3325884	1.6817308	45.3677665
2.125	.470588	143.7368083	1.2693168	1.1034484	.9054853	.3343976	1.6818929	45.5569323
2.130	.469484	144.4140126	1.2661251	1.1072972	.9063356	.3362074	1.6820166	45.7461234
2.135	.468384	145.0928085	1.2628927	1.1111118	.9071745	.3380177	1.6821020	45.9353332
2.140	.467290	145.7731958	1.2596197	1.1148916	.9080018	.3398284	1.6821489	46.1245543
2.145	.466200	146.4551748	1.2563064	1.1186362	.9088175	.3416395	1.6821572	46.3137314
2.150	.465116	147.1387453	1.2529532	1.1223454	.9096218	.3434507	1.6821267	46.5030059
2.155	.464037	147.8237073	1.2495603	1.1260177	.9104144	.3452622	1.6820573	46.6922214
2.160	.462963	148.5106609	1.2461280	1.1296535	.9111955	.3470737	1.6819489	46.8814206
2.165	.461894	149.1990060	1.2426567	1.1332521	.9119650	.3488852	1.6818014	47.0705963
2.170	.460829	149.8889427	1.2391466	1.1368128	.9127230	.3506966	1.6816146	47.2597411
2.175	.459770	151.5301709	1.2355980	1.1403353	.9134693	.3525078	1.6813884	47.4488475
2.180	.458716	151.2735907	1.2320114	1.1438190	.9142040	.3543188	1.6811228	47.6379079
2.185	.457666	151.9685020	1.2283871	1.1472633	.9149271	.3561294	1.6808176	47.8269143
2.190	.456621	152.6646049	1.2247253	1.1506679	.9156386	.3579395	1.6804727	48.0158602
2.195	.455581	153.3627993	1.2210264	1.1540322	.9163385	.3597491	1.6800880	48.2047363
2.200	.454545	154.0619853	1.2172909	1.1573556	.9170267	.3615581	1.6796634	48.3935351
2.205	.453515	154.7630628	1.2135190	1.1606378	.9177033	.3633663	1.6791988	48.5822484
2.210	.452489	155.4657319	1.2097142	1.1638782	.9183683	.3651738	1.6786940	48.7708680
2.215	.451467	156.1697925	1.2058678	1.1670763	.9190216	.3669804	1.6781490	48.9593856
2.220	.450450	156.8758447	1.2019892	1.1702317	.9196633	.3687859	1.6775638	49.1477927
2.225	.449438	157.5332884	1.1980758	1.1733438	.9202933	.3705904	1.6769381	49.3350807
2.230	.448430	158.2925237	1.1941281	1.1764122	.9209117	.3723938	1.6762719	49.5242409
2.235	.447427	159.0029505	1.1901463	1.1794364	.9215185	.3741959	1.6755651	49.7122544
2.240	.446429	159.7151689	1.1861311	1.1824159	.9221137	.3759966	1.6748177	49.9001424
2.245	.445434	160.4282788	1.1820827	1.1853502	.9226972	.3777959	1.6740294	50.0878656
2.250	.444444	161.1445803	1.1780016	1.1882389	.9232691	.3795937	1.6732004	50.2754250

l	r	r ²	x	Y	x _M	Δr	l _c	c°
2.255	.443459	161.8615733	1.4738883	1.1910815	.9238293	.3813899	1.6723304	50.4628110
2.260	.442478	162.5799579	1.1697432	1.1938776	.9243780	.3831843	1.6714194	50.5300144
2.265	.441501	163.3001340	1.1655668	1.1966266	.9249150	.3849770	1.6704674	50.8370253
2.270	.440529	164.0219017	1.1613595	1.1993282	.9254404	.3867677	1.6694742	51.0238341
2.275	.439560	164.7452609	1.1571218	1.2019818	.9259543	.3885565	1.6684398	51.2104309
2.280	.438596	165.4702116	1.1528543	1.2045871	.9264566	.3903432	1.6673641	51.3968056
2.285	.437637	166.1967540	1.1485572	1.2071436	.9269473	.3921277	1.6662471	51.5829480
2.290	.436681	166.9248878	1.1442313	1.2096507	.9274264	.3939100	1.6650887	51.7688478
2.295	.435730	167.6546132	1.1398769	1.2121082	.9278940	.3956899	1.6638888	51.9544945
2.300	.434783	168.3859302	1.1354947	1.2145156	.9283501	.3974673	1.6626474	52.1398775
2.305	.433839	169.1188387	1.1310850	1.2168724	.9287947	.3992422	1.6613644	52.3249859
2.310	.432900	169.8533388	1.1266485	1.2191783	.9292277	.4010145	1.6600399	52.5098089
2.315	.431965	170.5894304	1.1221856	1.2214327	.9296493	.4027840	1.6586737	52.6943353
2.320	.431034	171.3271136	1.1176969	1.2236353	.9300594	.4045508	1.6572658	52.8785538
2.325	.430108	172.0663883	1.1131830	1.2257858	.9304581	.4063145	1.6558162	53.0624531
2.330	.429185	172.8072545	1.1086444	1.2278836	.9308453	.4080753	1.6543248	53.2460214
2.335	.428266	173.5497124	1.1040817	1.2299283	.9312212	.4098330	1.6527916	53.4292470
2.340	.427350	174.2937617	1.0994954	1.2319197	.9315856	.4115875	1.6512166	53.6121180
2.345	.426439	175.0394026	1.0948861	1.2338573	.9319388	.4133387	1.6495998	53.7946222
2.350	.425532	175.7866351	1.0902544	1.2357407	.9322805	.4150865	1.6479411	53.9767474
2.355	.424628	176.5354591	1.0856009	1.2375696	.9326110	.4168308	1.6462405	54.1584810
2.360	.423729	177.2858747	1.0809262	1.2393435	.9329302	.4185715	1.6444981	54.3398103
2.365	.422833	178.0378818	1.0762309	1.2410622	.9332381	.4203086	1.6427137	54.5207225
2.370	.421941	178.7914804	1.0715156	1.2427252	.9335348	.4220419	1.6408874	54.7012046
2.375	.421053	179.5466706	1.0667809	1.2443322	.9338203	.4237714	1.6390193	54.8812432
2.380	.420168	180.3034524	1.0620275	1.2458829	.9340947	.4254969	1.6371092	55.0608250
2.385	.419287	181.0618257	1.0572560	1.2473769	.9343579	.4272183	1.6351573	55.2399363
2.390	.418410	181.8217905	1.0524669	1.2488139	.9346100	.4289357	1.6331634	55.4185632
2.395	.417537	182.5838469	1.0476611	1.2501936	.9348510	.4306488	1.6311277	55.5966917
2.400	.416667	183.3464949	1.0428391	1.2515156	.9350810	.4323575	1.6290502	55.7743075
2.405	.415800	184.1112344	1.0380015	1.2527796	.9353000	.4340619	1.6269308	55.9513962
2.410	.414938	184.8775655	1.0331491	1.2539855	.9355080	.4357617	1.6247697	56.1279429
2.415	.414079	185.6454881	1.0282825	1.2551237	.9357052	.4374570	1.6225668	56.3039329
2.420	.413223	186.4150022	1.0234025	1.2562211	.9358914	.4391475	1.6203222	56.4793510
2.425	.412371	187.1861079	1.0185096	1.2572504	.9360668	.4408333	1.6180359	56.6541817
2.430	.411523	187.9588052	1.0136046	1.2582202	.9362314	.4425142	1.6157080	56.8284095
2.435	.410678	188.7330940	1.0086882	1.2591305	.9363852	.4441901	1.6133386	57.0020185
2.440	.409836	189.5089743	1.0037610	1.2599807	.9365283	.4458609	1.6109276	57.1749926
2.445	.408998	190.2864462	.9988239	1.2607709	.9366608	.4475266	1.6084751	57.3473156
2.450	.408163	191.0655097	.9938774	1.2615005	.9367826	.4491870	1.6059813	57.5189708
2.455	.407332	191.8461647	.9889224	1.2621696	.9368938	.4508421	1.6034462	57.6899414
2.460	.406504	192.6284112	.9839596	1.2627778	.9369945	.4524918	1.6008698	57.8602104
2.465	.405680	193.4122493	.9789897	1.2633249	.9370848	.4541359	1.5982523	58.0297603
2.470	.404858	194.1976789	.9740133	1.2638107	.9371646	.4557745	1.5955937	58.1985736
2.475	.404040	194.9847001	.9690314	1.2642350	.9372340	.4574074	1.5928942	58.3666324
2.480	.403226	195.7733129	.9640446	1.2645976	.9372930	.4590344	1.5901538	58.5339186
2.485	.402414	196.5635172	.9590537	1.2648984	.9373419	.4606555	1.5873726	58.7004137
2.490	.401606	197.3553130	.9540594	1.2651371	.9373804	.4622707	1.5845508	58.8660992

l	r	r^c	x	Y	x_M	Δr	l_c	σ^c
2.495	.400802	198.1487004	.9490620	1.2653136	.9374088	.4638799	1.5816884	59.0309558
2.500	.400000	198.9436794	.9440639	1.2654278	.9374272	.4654829	1.5787857	59.1949543
2.505	.399202	199.7402499	.9390642	1.2664795	.9373354	.4670796	1.5758426	59.3581052
2.510	.398406	200.5384119	.9340643	1.2654685	.9374337	.4686700	1.5728594	59.5203586
2.515	.397614	201.3381655	.9290648	1.2653949	.9374220	.4702541	1.5698362	59.6817044
2.520	.396825	202.1395106	.9240667	1.2652583	.9374005	.4718316	1.5667731	59.8421220
2.525	.396040	202.9424473	.9190707	1.2650588	.9373691	.4734026	1.5636703	60.0015907
2.530	.395257	203.7469956	.9140777	1.2647963	.9373280	.4749669	1.5605280	60.1600892
2.535	.394477	204.5530953	.9090883	1.2644706	.9372772	.4765244	1.5573463	60.3175963
2.540	.393701	205.3608067	.9041035	1.2640817	.9372168	.4780751	1.5541253	60.4740901
2.545	.392927	206.1701096	.8991240	1.2636295	.9371469	.4796189	1.5508654	60.6295486
2.550	.392157	206.9810040	.8941507	1.2631140	.9370675	.4811557	1.5475656	60.7839492