

Spreadsheet to calculate shape of Parabolic Trough based on Width from center and height of Focus point

See References below to see how this formula was derived : $y=(X*X)/(4*p)$

a trough then it represents the curve of two sides. If used for a parabolic point then it represents 2 sides. Parabolas can be quite complex but for a simple mirror the formula is quite simple $Y = (X*X) / (4 * P)$ where X is the horizontal distance from center. Y is the vertical distance from the bottom and P is the vertical distance from bottom to where the focus should be. On The Focus point Y set the desired focus point vertical from the lowest point of the parabola and the sheet will recalculate. The results are formatted with no decimal points with the assumption that you can interpret the numbers as Feet for very rough shapes, Inches for finer, centimeters for quite fine and mm for very fine. The smaller the unit you use the more accurate the curve will be.

In our application we wanted to modify the shape half way up for a different focal point so it allows you to set 4 different focal points and will calculated for all of them. We call the answers Calc Y but once the parabola was assembled and sitting with it's lowest point down and it's highest point up this would actually be point Z. We call it Y because when cutting the support shapes it can be treated as a simple 2D grid. Added the thickness at beginning because I got tired of adding an offset for each item.

Material Thickness center 3

Focus Point Y Height How high above the parabola do you want to focus	1	9	12	18	46	160	Note: Illust
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X Location Measured from center	Total Width of parabola X+	Calc Y	Calc Y	Calc Y	Calc Y	Calc Y	Calc Y	Calc Y
0	0	0	3.0	3.0	3.0	3.0	3.0	3.0
1	2	3.3	3.0	3.0	3.0	3.0	3.0	3.0
2	4	4.0	3.1	3.1	3.1	3.0	3.0	3.0
3	6	5.3	3.3	3.2	3.1	3.0	3.0	3.0
4	8	7.0	3.4	3.3	3.2	3.1	3.0	3.0
5	10	9.3	3.7	3.5	3.3	3.1	3.0	3.0
6	12	12.0	4.0	3.8	3.5	3.2	3.1	3.1
7	14	15.3	4.4	4.0	3.7	3.3	3.1	3.1
8	16	19.0	4.8	4.3	3.9	3.3	3.1	3.1
9	18	23.3	5.3	4.7	4.1	3.4	3.1	3.1
10	20	28.0	5.8	5.1	4.4	3.5	3.2	3.2
11	22	33.3	6.4	5.5	4.7	3.7	3.2	3.2
12	24	39.0	7.0	6.0	5.0	3.8	3.2	3.2
13	26	45.3	7.7	6.5	5.3	3.9	3.3	3.3
14	28	52.0	8.4	7.1	5.7	4.1	3.3	3.3
15	30	59.3	9.3	7.7	6.1	4.2	3.4	3.4
16	32	67.0	10.1	8.3	6.6	4.4	3.4	3.4
17	34	75.3	11.0	9.0	7.0	4.6	3.5	3.5
18	36	84.0	12.0	9.8	7.5	4.8	3.5	3.5
19	38	93.3	13.0	10.5	8.0	5.0	3.6	3.6

20	40	103.0	14.1	11.3	8.6	5.2	3.6
21	42	113.3	15.3	12.2	9.1	5.4	3.7
22	44	124.0	16.4	13.1	9.7	5.6	3.8
23	46	135.3	17.7	14.0	10.3	5.9	3.8
24	48	147.0	19.0	15.0	11.0	6.1	3.9 4 foot
25	50	159.3	20.4	16.0	11.7	6.4	4.0
26	52	172.0	21.8	17.1	12.4	6.7	4.1
27	54	185.3	23.3	18.2	13.1	7.0	4.1
28	56	199.0	24.8	19.3	13.9	7.3	4.2
29	58	213.3	26.4	20.5	14.7	7.6	4.3
30	60	228.0	28.0	21.8	15.5	7.9	4.4
31	62	243.3	29.7	23.0	16.3	8.2	4.5
32	64	259.0	31.4	24.3	17.2	8.6	4.6
33	66	275.3	33.3	25.7	18.1	8.9	4.7
34	68	292.0	35.1	27.1	19.1	9.3	4.8
35	70	309.3	37.0	28.5	20.0	9.7	4.9
36	72	327.0	39.0	30.0	21.0	10.0	5.0
37	74	345.3	41.0	31.5	22.0	10.4	5.1
38	76	364.0	43.1	33.1	23.1	10.8	5.3
39	78	383.3	45.3	34.7	24.1	11.3	5.4
40	80	403.0	47.4	36.3	25.2	11.7	5.5
41	82	423.3	49.7	38.0	26.3	12.1	5.6
42	84	444.0	52.0	39.8	27.5	12.6	5.8
43	86	465.3	54.4	41.5	28.7	13.0	5.9
44	88	487.0	56.8	43.3	29.9	13.5	6.0
45	90	509.3	59.3	45.2	31.1	14.0	6.2
46	92	532.0	61.8	47.1	32.4	14.5	6.3
47	94	555.3	64.4	49.0	33.7	15.0	6.5
48	96	579.0	67.0	51.0	35.0	15.5	6.6 8 foot
49	98	603.3	69.7	53.0	36.3	16.0	6.8
50	100	628.0	72.4	55.1	37.7	16.6	6.9
51	102	653.3	75.3	57.2	39.1	17.1	7.1
52	104	679.0	78.1	59.3	40.6	17.7	7.2
53	106	705.3	81.0	61.5	42.0	18.3	7.4
54	108	732.0	84.0	63.8	43.5	18.8	7.6
55	110	759.3	87.0	66.0	45.0	19.4	7.7
56	112	787.0	90.1	68.3	46.6	20.0	7.9
57	114	815.3	93.3	70.7	48.1	20.7	8.1
58	116	844.0	96.4	73.1	49.7	21.3	8.3
59	118	873.3	99.7	75.5	51.3	21.9	8.4
60	120	903.0	103.0	78.0	53.0	22.6	8.6
61	122	933.3	106.4	80.5	54.7	23.2	8.8 <small>4 foot in Centimeter</small>
62	124	964.0	109.8	83.1	56.4	23.9	9.0
63	126	995.3	113.3	85.7	58.1	24.6	9.2
64	128	1,027.0	116.8	88.3	59.9	25.3	9.4
65	130	1,059.3	120.4	91.0	61.7	26.0	9.6
66	132	1,092.0	124.0	93.8	63.5	26.7	9.8
67	134	1,125.3	127.7	96.5	65.3	27.4	10.0
68	136	1,159.0	131.4	99.3	67.2	28.1	10.2

69	138	1,193.3	135.3	102.2	69.1	28.9	10.4
70	140	1,228.0	139.1	105.1	71.1	29.6	10.7
71	142	1,263.3	143.0	108.0	73.0	30.4	10.9
72	144	1,299.0	147.0	111.0	75.0	31.2	11.1
73	146	1,335.3	151.0	114.0	77.0	32.0	11.3
74	148	1,372.0	155.1	117.1	79.1	32.8	11.6
75	150	1,409.3	159.3	120.2	81.1	33.6	11.8
76	152	1,447.0	163.4	123.3	83.2	34.4	12.0
77	154	1,485.3	167.7	126.5	85.3	35.2	12.3
78	156	1,524.0	172.0	129.8	87.5	36.1	12.5
79	158	1,563.3	176.4	133.0	89.7	36.9	12.8
80	160	1,603.0	180.8	136.3	91.9	37.8	13.0
81	162	1,643.3	185.3	139.7	94.1	38.7	13.3
82	164	1,684.0	189.8	143.1	96.4	39.5	13.5
83	166	1,725.3	194.4	146.5	98.7	40.4	13.8
84	168	1,767.0	199.0	150.0	101.0	41.3	14.0
85	170	1,809.3	203.7	153.5	103.3	42.3	14.3
86	172	1,852.0	208.4	157.1	105.7	43.2	14.6
87	174	1,895.3	213.3	160.7	108.1	44.1	14.8
88	176	1,939.0	218.1	164.3	110.6	45.1	15.1
89	178	1,983.3	223.0	168.0	113.0	46.0	15.4
90	180	2,028.0	228.0	171.8	115.5	47.0	15.7
91	182	2,073.3	233.0	175.5	118.0	48.0	15.9
92	184	2,119.0	238.1	179.3	120.6	49.0	16.2
93	186	2,165.3	243.3	183.2	123.1	50.0	16.5
94	188	2,212.0	248.4	187.1	125.7	51.0	16.8
95	190	2,259.3	253.7	191.0	128.3	52.0	17.1
96	192	2,307.0	259.0	195.0	131.0	53.1	17.4
97	194	2,355.3	264.4	199.0	133.7	54.1	17.7
98	196	2,404.0	269.8	203.1	136.4	55.2	18.0
99	198	2,453.3	275.3	207.2	139.1	56.3	18.3
100	200	2,503.0	280.8	211.3	141.9	57.3	18.6
101	202	2,553.3	286.4	215.5	144.7	58.4	18.9
102	204	2,604.0	292.0	219.8	147.5	59.5	19.3
103	206	2,655.3	297.7	224.0	150.3	60.7	19.6
104	208	2,707.0	303.4	228.3	153.2	61.8	19.9
105	210	2,759.3	309.3	232.7	156.1	62.9	20.2
106	212	2,812.0	315.1	237.1	159.1	64.1	20.6
107	214	2,865.3	321.0	241.5	162.0	65.2	20.9
108	216	2,919.0	327.0	246.0	165.0	66.4	21.2
109	218	2,973.3	333.0	250.5	168.0	67.6	21.6
110	220	3,028.0	339.1	255.1	171.1	68.8	21.9
111	222	3,083.3	345.3	259.7	174.1	70.0	22.3
112	224	3,139.0	351.4	264.3	177.2	71.2	22.6
113	226	3,195.3	357.7	269.0	180.3	72.4	23.0
114	228	3,252.0	364.0	273.8	183.5	73.6	23.3
115	230	3,309.3	370.4	278.5	186.7	74.9	23.7
116	232	3,367.0	376.8	283.3	189.9	76.1	24.0
117	234	3,425.3	383.3	288.2	193.1	77.4	24.4
118	236	3,484.0	389.8	293.1	196.4	78.7	24.8

119	238	3,543.3	396.4	298.0	199.7	80.0	25.1
120	240	3,603.0	403.0	303.0	203.0	81.3	25.5
121	242	3,663.3	409.7	308.0	206.3	82.6	25.9
122	244	3,724.0	416.4	313.1	209.7	83.9	26.3
123	246	3,785.3	423.3	318.2	213.1	85.2	26.6
124	248	3,847.0	430.1	323.3	216.6	86.6	27.0
125	250	3,909.3	437.0	328.5	220.0	87.9	27.4
126	252	3,972.0	444.0	333.8	223.5	89.3	27.8
127	254	4,035.3	451.0	339.0	227.0	90.7	28.2
128	256	4,099.0	458.1	344.3	230.6	92.0	28.6
129	258	4,163.3	465.3	349.7	234.1	93.4	29.0
130	260	4,228.0	472.4	355.1	237.7	94.8	29.4
131	262	4,293.3	479.7	360.5	241.3	96.3	29.8
132	264	4,359.0	487.0	366.0	245.0	97.7	30.2
133	266	4,425.3	494.4	371.5	248.7	99.1	30.6
134	268	4,492.0	501.8	377.1	252.4	100.6	31.1
135	270	4,559.3	509.3	382.7	256.1	102.0	31.5
136	272	4,627.0	516.8	388.3	259.9	103.5	31.9
137	274	4,695.3	524.4	394.0	263.7	105.0	32.3
138	276	4,764.0	532.0	399.8	267.5	106.5	32.8
139	278	4,833.3	539.7	405.5	271.3	108.0	33.2
140	280	4,903.0	547.4	411.3	275.2	109.5	33.6
141	282	4,973.3	555.3	417.2	279.1	111.0	34.1
142	284	5,044.0	563.1	423.1	283.1	112.6	34.5
143	286	5,115.3	571.0	429.0	287.0	114.1	35.0
144	288	5,187.0	579.0	435.0	291.0	115.7	35.4
145	290	5,259.3	587.0	441.0	295.0	117.3	35.9
146	292	5,332.0	595.1	447.1	299.1	118.8	36.3
147	294	5,405.3	603.3	453.2	303.1	120.4	36.8
148	296	5,479.0	611.4	459.3	307.2	122.0	37.2
149	298	5,553.3	619.7	465.5	311.3	123.7	37.7
150	300	5,628.0	628.0	471.8	315.5	125.3	38.2
151	302	5,703.3	636.4	478.0	319.7	126.9	38.6
152	304	5,779.0	644.8	484.3	323.9	128.6	39.1
153	306	5,855.3	653.3	490.7	328.1	130.2	39.6
154	308	5,932.0	661.8	497.1	332.4	131.9	40.1
155	310	6,009.3	670.4	503.5	336.7	133.6	40.5
156	312	6,087.0	679.0	510.0	341.0	135.3	41.0
157	314	6,165.3	687.7	516.5	345.3	137.0	41.5
158	316	6,244.0	696.4	523.1	349.7	138.7	42.0
159	318	6,323.3	705.3	529.7	354.1	140.4	42.5
160	320	6,403.0	714.1	536.3	358.6	142.1	43.0
161	322	6,483.3	723.0	543.0	363.0	143.9	43.5
162	324	6,564.0	732.0	549.8	367.5	145.6	44.0
163	326	6,645.3	741.0	556.5	372.0	147.4	44.5
164	328	6,727.0	750.1	563.3	376.6	149.2	45.0
165	330	6,809.3	759.3	570.2	381.1	151.0	45.5
166	332	6,892.0	768.4	577.1	385.7	152.8	46.1
167	334	6,975.3	777.7	584.0	390.3	154.6	46.6
168	336	7,059.0	787.0	591.0	395.0	156.4	47.1

169	338	7,143.3	796.4	598.0	399.7	158.2	47.6
170	340	7,228.0	805.8	605.1	404.4	160.1	48.2
171	342	7,313.3	815.3	612.2	409.1	161.9	48.7
172	344	7,399.0	824.8	619.3	413.9	163.8	49.2
173	346	7,485.3	834.4	626.5	418.7	165.7	49.8
174	348	7,572.0	844.0	633.8	423.5	167.5	50.3
175	350	7,659.3	853.7	641.0	428.3	169.4	50.9
176	352	7,747.0	863.4	648.3	433.2	171.3	51.4
177	354	7,835.3	873.3	655.7	438.1	173.3	52.0
178	356	7,924.0	883.1	663.1	443.1	175.2	52.5
179	358	8,013.3	893.0	670.5	448.0	177.1	53.1
180	360	8,103.0	903.0	678.0	453.0	179.1	53.6
181	362	8,193.3	913.0	685.5	458.0	181.0	54.2
182	364	8,284.0	923.1	693.1	463.1	183.0	54.8
183	366	8,375.3	933.3	700.7	468.1	185.0	55.3
184	368	8,467.0	943.4	708.3	473.2	187.0	55.9
185	370	8,559.3	953.7	716.0	478.3	189.0	56.5
186	372	8,652.0	964.0	723.8	483.5	191.0	57.1
187	374	8,745.3	974.4	731.5	488.7	193.0	57.6
188	376	8,839.0	984.8	739.3	493.9	195.1	58.2
189	378	8,933.3	995.3	747.2	499.1	197.1	58.8
190	380	9,028.0	1,005.8	755.1	504.4	199.2	59.4
191	382	9,123.3	1,016.4	763.0	509.7	201.3	60.0
192	384	9,219.0	1,027.0	771.0	515.0	203.3	60.6
193	386	9,315.3	1,037.7	779.0	520.3	205.4	61.2
194	388	9,412.0	1,048.4	787.1	525.7	207.5	61.8
195	390	9,509.3	1,059.3	795.2	531.1	209.7	62.4
196	392	9,607.0	1,070.1	803.3	536.6	211.8	63.0
197	394	9,705.3	1,081.0	811.5	542.0	213.9	63.6
198	396	9,804.0	1,092.0	819.8	547.5	216.1	64.3
199	398	9,903.3	1,103.0	828.0	553.0	218.2	64.9
200	400	10,003.0	1,114.1	836.3	558.6	220.4	65.5
201	402	10,103.3	1,125.3	844.7	564.1	222.6	66.1
202	404	10,204.0	1,136.4	853.1	569.7	224.8	66.8
203	406	10,305.3	1,147.7	861.5	575.3	227.0	67.4
204	408	10,407.0	1,159.0	870.0	581.0	229.2	68.0
205	410	10,509.3	1,170.4	878.5	586.7	231.4	68.7
206	412	10,612.0	1,181.8	887.1	592.4	233.6	69.3
207	414	10,715.3	1,193.3	895.7	598.1	235.9	70.0
208	416	10,819.0	1,204.8	904.3	603.9	238.1	70.6
209	418	10,923.3	1,216.4	913.0	609.7	240.4	71.3
210	420	11,028.0	1,228.0	921.8	615.5	242.7	71.9
211	422	11,133.3	1,239.7	930.5	621.3	245.0	72.6
212	424	11,239.0	1,251.4	939.3	627.2	247.3	73.2
213	426	11,345.3	1,263.3	948.2	633.1	249.6	73.9
214	428	11,452.0	1,275.1	957.1	639.1	251.9	74.6
215	430	11,559.3	1,287.0	966.0	645.0	254.2	75.2
216	432	11,667.0	1,299.0	975.0	651.0	256.6	75.9
217	434	11,775.3	1,311.0	984.0	657.0	258.9	76.6
218	436	11,884.0	1,323.1	993.1	663.1	261.3	77.3

219	438	11,993.3	1,335.3	1,002.2	669.1	263.7	77.9
220	440	12,103.0	1,347.4	1,011.3	675.2	266.0	78.6
221	442	12,213.3	1,359.7	1,020.5	681.3	268.4	79.3
222	444	12,324.0	1,372.0	1,029.8	687.5	270.8	80.0
223	446	12,435.3	1,384.4	1,039.0	693.7	273.3	80.7
224	448	12,547.0	1,396.8	1,048.3	699.9	275.7	81.4
225	450	12,659.3	1,409.3	1,057.7	706.1	278.1	82.1
226	452	12,772.0	1,421.8	1,067.1	712.4	280.6	82.8
227	454	12,885.3	1,434.4	1,076.5	718.7	283.0	83.5
228	456	12,999.0	1,447.0	1,086.0	725.0	285.5	84.2
229	458	13,113.3	1,459.7	1,095.5	731.3	288.0	84.9
230	460	13,228.0	1,472.4	1,105.1	737.7	290.5	85.7
231	462	13,343.3	1,485.3	1,114.7	744.1	293.0	86.4
232	464	13,459.0	1,498.1	1,124.3	750.6	295.5	87.1
233	466	13,575.3	1,511.0	1,134.0	757.0	298.0	87.8
234	468	13,692.0	1,524.0	1,143.8	763.5	300.6	88.6
235	470	13,809.3	1,537.0	1,153.5	770.0	303.1	89.3
236	472	13,927.0	1,550.1	1,163.3	776.6	305.7	90.0
237	474	14,045.3	1,563.3	1,173.2	783.1	308.3	90.8
238	476	14,164.0	1,576.4	1,183.1	789.7	310.8	91.5
239	478	14,283.3	1,589.7	1,193.0	796.3	313.4	92.3
240	480	14,403.0	1,603.0	1,203.0	803.0	316.0	93.0
241	482	14,523.3	1,616.4	1,213.0	809.7	318.7	93.8
242	484	14,644.0	1,629.8	1,223.1	816.4	321.3	94.5
243	486	14,765.3	1,643.3	1,233.2	823.1	323.9	95.3
244	488	14,887.0	1,656.8	1,243.3	829.9	326.6	96.0
245	490	15,009.3	1,670.4	1,253.5	836.7	329.2	96.8
246	492	15,132.0	1,684.0	1,263.8	843.5	331.9	97.6
247	494	15,255.3	1,697.7	1,274.0	850.3	334.6	98.3
248	496	15,379.0	1,711.4	1,284.3	857.2	337.3	99.1
249	498	15,503.3	1,725.3	1,294.7	864.1	340.0	99.9
250	500	15,628.0	1,739.1	1,305.1	871.1	342.7	100.7
251	502	15,753.3	1,753.0	1,315.5	878.0	345.4	101.4
252	504	15,879.0	1,767.0	1,326.0	885.0	348.1	102.2
253	506	16,005.3	1,781.0	1,336.5	892.0	350.9	103.0
254	508	16,132.0	1,795.1	1,347.1	899.1	353.6	103.8
255	510	16,259.3	1,809.3	1,357.7	906.1	356.4	104.6
256	512	16,387.0	1,823.4	1,368.3	913.2	359.2	105.4
257	514	16,515.3	1,837.7	1,379.0	920.3	362.0	106.2
258	516	16,644.0	1,852.0	1,389.8	927.5	364.8	107.0
259	518	16,773.3	1,866.4	1,400.5	934.7	367.6	107.8
260	520	16,903.0	1,880.8	1,411.3	941.9	370.4	108.6
261	522	17,033.3	1,895.3	1,422.2	949.1	373.2	109.4
262	524	17,164.0	1,909.8	1,433.1	956.4	376.1	110.3
263	526	17,295.3	1,924.4	1,444.0	963.7	378.9	111.1
264	528	17,427.0	1,939.0	1,455.0	971.0	381.8	111.9
265	530	17,559.3	1,953.7	1,466.0	978.3	384.7	112.7
266	532	17,692.0	1,968.4	1,477.1	985.7	387.5	113.6
267	534	17,825.3	1,983.3	1,488.2	993.1	390.4	114.4
268	536	17,959.0	1,998.1	1,499.3	1,000.6	393.3	115.2

269	538	18,093.3	2,013.0	1,510.5	1,008.0	396.3	116.1
270	540	18,228.0	2,028.0	1,521.8	1,015.5	399.2	116.9
271	542	18,363.3	2,043.0	1,533.0	1,023.0	402.1	117.8
272	544	18,499.0	2,058.1	1,544.3	1,030.6	405.1	118.6
273	546	18,635.3	2,073.3	1,555.7	1,038.1	408.0	119.5
274	548	18,772.0	2,088.4	1,567.1	1,045.7	411.0	120.3
275	550	18,909.3	2,103.7	1,578.5	1,053.3	414.0	121.2
276	552	19,047.0	2,119.0	1,590.0	1,061.0	417.0	122.0
277	554	19,185.3	2,134.4	1,601.5	1,068.7	420.0	122.9
278	556	19,324.0	2,149.8	1,613.1	1,076.4	423.0	123.8
279	558	19,463.3	2,165.3	1,624.7	1,084.1	426.0	124.6
280	560	19,603.0	2,180.8	1,636.3	1,091.9	429.1	125.5
281	562	19,743.3	2,196.4	1,648.0	1,099.7	432.1	126.4
282	564	19,884.0	2,212.0	1,659.8	1,107.5	435.2	127.3
283	566	20,025.3	2,227.7	1,671.5	1,115.3	438.3	128.1
284	568	20,167.0	2,243.4	1,683.3	1,123.2	441.3	129.0
285	570	20,309.3	2,259.3	1,695.2	1,131.1	444.4	129.9
286	572	20,452.0	2,275.1	1,707.1	1,139.1	447.5	130.8
287	574	20,595.3	2,291.0	1,719.0	1,147.0	450.7	131.7
288	576	20,739.0	2,307.0	1,731.0	1,155.0	453.8	132.6
289	578	20,883.3	2,323.0	1,743.0	1,163.0	456.9	133.5
290	580	21,028.0	2,339.1	1,755.1	1,171.1	460.1	134.4
291	582	21,173.3	2,355.3	1,767.2	1,179.1	463.2	135.3
292	584	21,319.0	2,371.4	1,779.3	1,187.2	466.4	136.2
293	586	21,465.3	2,387.7	1,791.5	1,195.3	469.6	137.1
294	588	21,612.0	2,404.0	1,803.8	1,203.5	472.8	138.1
295	590	21,759.3	2,420.4	1,816.0	1,211.7	476.0	139.0
296	592	21,907.0	2,436.8	1,828.3	1,219.9	479.2	139.9
297	594	22,055.3	2,453.3	1,840.7	1,228.1	482.4	140.8
298	596	22,204.0	2,469.8	1,853.1	1,236.4	485.6	141.8
299	598	22,353.3	2,486.4	1,865.5	1,244.7	488.9	142.7
300	600	22,503.0	2,503.0	1,878.0	1,253.0	492.1	143.6
301	602	22,653.3	2,519.7	1,890.5	1,261.3	495.4	144.6
302	604	22,804.0	2,536.4	1,903.1	1,269.7	498.7	145.5
303	606	22,955.3	2,553.3	1,915.7	1,278.1	502.0	146.5
304	608	23,107.0	2,570.1	1,928.3	1,286.6	505.3	147.4
305	610	23,259.3	2,587.0	1,941.0	1,295.0	508.6	148.4
306	612	23,412.0	2,604.0	1,953.8	1,303.5	511.9	149.3
307	614	23,565.3	2,621.0	1,966.5	1,312.0	515.2	150.3
308	616	23,719.0	2,638.1	1,979.3	1,320.6	518.6	151.2
309	618	23,873.3	2,655.3	1,992.2	1,329.1	521.9	152.2
310	620	24,028.0	2,672.4	2,005.1	1,337.7	525.3	153.2
311	622	24,183.3	2,689.7	2,018.0	1,346.3	528.7	154.1
312	624	24,339.0	2,707.0	2,031.0	1,355.0	532.0	155.1
313	626	24,495.3	2,724.4	2,044.0	1,363.7	535.4	156.1
314	628	24,652.0	2,741.8	2,057.1	1,372.4	538.8	157.1
315	630	24,809.3	2,759.3	2,070.2	1,381.1	542.3	158.0
316	632	24,967.0	2,776.8	2,083.3	1,389.9	545.7	159.0
317	634	25,125.3	2,794.4	2,096.5	1,398.7	549.1	160.0
318	636	25,284.0	2,812.0	2,109.8	1,407.5	552.6	161.0

319	638	25,443.3	2,829.7	2,123.0	1,416.3	556.0	162.0
320	640	25,603.0	2,847.4	2,136.3	1,425.2	559.5	163.0
321	642	25,763.3	2,865.3	2,149.7	1,434.1	563.0	164.0
322	644	25,924.0	2,883.1	2,163.1	1,443.1	566.5	165.0
323	646	26,085.3	2,901.0	2,176.5	1,452.0	570.0	166.0
324	648	26,247.0	2,919.0	2,190.0	1,461.0	573.5	167.0
325	650	26,409.3	2,937.0	2,203.5	1,470.0	577.0	168.0
326	652	26,572.0	2,955.1	2,217.1	1,479.1	580.6	169.1
327	654	26,735.3	2,973.3	2,230.7	1,488.1	584.1	170.1
328	656	26,899.0	2,991.4	2,244.3	1,497.2	587.7	171.1
329	658	27,063.3	3,009.7	2,258.0	1,506.3	591.3	172.1
330	660	27,228.0	3,028.0	2,271.8	1,515.5	594.8	173.2
331	662	27,393.3	3,046.4	2,285.5	1,524.7	598.4	174.2
332	664	27,559.0	3,064.8	2,299.3	1,533.9	602.0	175.2
333	666	27,725.3	3,083.3	2,313.2	1,543.1	605.7	176.3
334	668	27,892.0	3,101.8	2,327.1	1,552.4	609.3	177.3
335	670	28,059.3	3,120.4	2,341.0	1,561.7	612.9	178.4
336	672	28,227.0	3,139.0	2,355.0	1,571.0	616.6	179.4
337	674	28,395.3	3,157.7	2,369.0	1,580.3	620.2	180.5
338	676	28,564.0	3,176.4	2,383.1	1,589.7	623.9	181.5
339	678	28,733.3	3,195.3	2,397.2	1,599.1	627.6	182.6
340	680	28,903.0	3,214.1	2,411.3	1,608.6	631.3	183.6
341	682	29,073.3	3,233.0	2,425.5	1,618.0	635.0	184.7
342	684	29,244.0	3,252.0	2,439.8	1,627.5	638.7	185.8
343	686	29,415.3	3,271.0	2,454.0	1,637.0	642.4	186.8
344	688	29,587.0	3,290.1	2,468.3	1,646.6	646.1	187.9
345	690	29,759.3	3,309.3	2,482.7	1,656.1	649.9	189.0
346	692	29,932.0	3,328.4	2,497.1	1,665.7	653.6	190.1
347	694	30,105.3	3,347.7	2,511.5	1,675.3	657.4	191.1
348	696	30,279.0	3,367.0	2,526.0	1,685.0	661.2	192.2
349	698	30,453.3	3,386.4	2,540.5	1,694.7	665.0	193.3
350	700	30,628.0	3,405.8	2,555.1	1,704.4	668.8	194.4
351	702	30,803.3	3,425.3	2,569.7	1,714.1	672.6	195.5
352	704	30,979.0	3,444.8	2,584.3	1,723.9	676.4	196.6
353	706	31,155.3	3,464.4	2,599.0	1,733.7	680.2	197.7
354	708	31,332.0	3,484.0	2,613.8	1,743.5	684.1	198.8
355	710	31,509.3	3,503.7	2,628.5	1,753.3	687.9	199.9
356	712	31,687.0	3,523.4	2,643.3	1,763.2	691.8	201.0
357	714	31,865.3	3,543.3	2,658.2	1,773.1	695.7	202.1
358	716	32,044.0	3,563.1	2,673.1	1,783.1	699.5	203.3
359	718	32,223.3	3,583.0	2,688.0	1,793.0	703.4	204.4
360	720	32,403.0	3,603.0	2,703.0	1,803.0	707.3	205.5
361	722	32,583.3	3,623.0	2,718.0	1,813.0	711.3	206.6
362	724	32,764.0	3,643.1	2,733.1	1,823.1	715.2	207.8
363	726	32,945.3	3,663.3	2,748.2	1,833.1	719.1	208.9
364	728	33,127.0	3,683.4	2,763.3	1,843.2	723.1	210.0
365	730	33,309.3	3,703.7	2,778.5	1,853.3	727.0	211.2
366	732	33,492.0	3,724.0	2,793.8	1,863.5	731.0	212.3
367	734	33,675.3	3,744.4	2,809.0	1,873.7	735.0	213.5
368	736	33,859.0	3,764.8	2,824.3	1,883.9	739.0	214.6

369	738	34,043.3	3,785.3	2,839.7	1,894.1	743.0	215.8
370	740	34,228.0	3,805.8	2,855.1	1,904.4	747.0	216.9
371	742	34,413.3	3,826.4	2,870.5	1,914.7	751.0	218.1
372	744	34,599.0	3,847.0	2,886.0	1,925.0	755.1	219.2
373	746	34,785.3	3,867.7	2,901.5	1,935.3	759.1	220.4
374	748	34,972.0	3,888.4	2,917.1	1,945.7	763.2	221.6
375	750	35,159.3	3,909.3	2,932.7	1,956.1	767.3	222.7
376	752	35,347.0	3,930.1	2,948.3	1,966.6	771.3	223.9
377	754	35,535.3	3,951.0	2,964.0	1,977.0	775.4	225.1
378	756	35,724.0	3,972.0	2,979.8	1,987.5	779.5	226.3
379	758	35,913.3	3,993.0	2,995.5	1,998.0	783.7	227.4
380	760	36,103.0	4,014.1	3,011.3	2,008.6	787.8	228.6
381	762	36,293.3	4,035.3	3,027.2	2,019.1	791.9	229.8
382	764	36,484.0	4,056.4	3,043.1	2,029.7	796.1	231.0
383	766	36,675.3	4,077.7	3,059.0	2,040.3	800.2	232.2
384	768	36,867.0	4,099.0	3,075.0	2,051.0	804.4	233.4
385	770	37,059.3	4,120.4	3,091.0	2,061.7	808.6	234.6
386	772	37,252.0	4,141.8	3,107.1	2,072.4	812.8	235.8
387	774	37,445.3	4,163.3	3,123.2	2,083.1	817.0	237.0
388	776	37,639.0	4,184.8	3,139.3	2,093.9	821.2	238.2
389	778	37,833.3	4,206.4	3,155.5	2,104.7	825.4	239.4
390	780	38,028.0	4,228.0	3,171.8	2,115.5	829.6	240.7
391	782	38,223.3	4,249.7	3,188.0	2,126.3	833.9	241.9
392	784	38,419.0	4,271.4	3,204.3	2,137.2	838.1	243.1
393	786	38,615.3	4,293.3	3,220.7	2,148.1	842.4	244.3
394	788	38,812.0	4,315.1	3,237.1	2,159.1	846.7	245.6
395	790	39,009.3	4,337.0	3,253.5	2,170.0	851.0	246.8
396	792	39,207.0	4,359.0	3,270.0	2,181.0	855.3	248.0
397	794	39,405.3	4,381.0	3,286.5	2,192.0	859.6	249.3
398	796	39,604.0	4,403.1	3,303.1	2,203.1	863.9	250.5
399	798	39,803.3	4,425.3	3,319.7	2,214.1	868.2	251.8
400	800	40,003.0	4,447.4	3,336.3	2,225.2	872.6	253.0
401	802	40,203.3	4,469.7	3,353.0	2,236.3	876.9	254.3
402	804	40,404.0	4,492.0	3,369.8	2,247.5	881.3	255.5
403	806	40,605.3	4,514.4	3,386.5	2,258.7	885.7	256.8
404	808	40,807.0	4,536.8	3,403.3	2,269.9	890.0	258.0
405	810	41,009.3	4,559.3	3,420.2	2,281.1	894.4	259.3
406	812	41,212.0	4,581.8	3,437.1	2,292.4	898.8	260.6
407	814	41,415.3	4,604.4	3,454.0	2,303.7	903.3	261.8
408	816	41,619.0	4,627.0	3,471.0	2,315.0	907.7	263.1
409	818	41,823.3	4,649.7	3,488.0	2,326.3	912.1	264.4
410	820	42,028.0	4,672.4	3,505.1	2,337.7	916.6	265.7
411	822	42,233.3	4,695.3	3,522.2	2,349.1	921.0	266.9
412	824	42,439.0	4,718.1	3,539.3	2,360.6	925.5	268.2
413	826	42,645.3	4,741.0	3,556.5	2,372.0	930.0	269.5
414	828	42,852.0	4,764.0	3,573.8	2,383.5	934.5	270.8
415	830	43,059.3	4,787.0	3,591.0	2,395.0	939.0	272.1
416	832	43,267.0	4,810.1	3,608.3	2,406.6	943.5	273.4
417	834	43,475.3	4,833.3	3,625.7	2,418.1	948.0	274.7
418	836	43,684.0	4,856.4	3,643.1	2,429.7	952.6	276.0

419	838	43,893.3	4,879.7	3,660.5	2,441.3	957.1	277.3
420	840	44,103.0	4,903.0	3,678.0	2,453.0	961.7	278.6
421	842	44,313.3	4,926.4	3,695.5	2,464.7	966.3	279.9
422	844	44,524.0	4,949.8	3,713.1	2,476.4	970.8	281.3
423	846	44,735.3	4,973.3	3,730.7	2,488.1	975.4	282.6
424	848	44,947.0	4,996.8	3,748.3	2,499.9	980.0	283.9
425	850	45,159.3	5,020.4	3,766.0	2,511.7	984.7	285.2
426	852	45,372.0	5,044.0	3,783.8	2,523.5	989.3	286.6
427	854	45,585.3	5,067.7	3,801.5	2,535.3	993.9	287.9
428	856	45,799.0	5,091.4	3,819.3	2,547.2	998.6	289.2
429	858	46,013.3	5,115.3	3,837.2	2,559.1	1,003.2	290.6
430	860	46,228.0	5,139.1	3,855.1	2,571.1	1,007.9	291.9
431	862	46,443.3	5,163.0	3,873.0	2,583.0	1,012.6	293.3
432	864	46,659.0	5,187.0	3,891.0	2,595.0	1,017.3	294.6
433	866	46,875.3	5,211.0	3,909.0	2,607.0	1,022.0	296.0
434	868	47,092.0	5,235.1	3,927.1	2,619.1	1,026.7	297.3
435	870	47,309.3	5,259.3	3,945.2	2,631.1	1,031.4	298.7
436	872	47,527.0	5,283.4	3,963.3	2,643.2	1,036.1	300.0
437	874	47,745.3	5,307.7	3,981.5	2,655.3	1,040.9	301.4
438	876	47,964.0	5,332.0	3,999.8	2,667.5	1,045.6	302.8
439	878	48,183.3	5,356.4	4,018.0	2,679.7	1,050.4	304.1
440	880	48,403.0	5,380.8	4,036.3	2,691.9	1,055.2	305.5
441	882	48,623.3	5,405.3	4,054.7	2,704.1	1,060.0	306.9
442	884	48,844.0	5,429.8	4,073.1	2,716.4	1,064.8	308.3
443	886	49,065.3	5,454.4	4,091.5	2,728.7	1,069.6	309.6
444	888	49,287.0	5,479.0	4,110.0	2,741.0	1,074.4	311.0
445	890	49,509.3	5,503.7	4,128.5	2,753.3	1,079.2	312.4
446	892	49,732.0	5,528.4	4,147.1	2,765.7	1,084.1	313.8
447	894	49,955.3	5,553.3	4,165.7	2,778.1	1,088.9	315.2
448	896	50,179.0	5,578.1	4,184.3	2,790.6	1,093.8	316.6
449	898	50,403.3	5,603.0	4,203.0	2,803.0	1,098.7	318.0
450	900	50,628.0	5,628.0	4,221.8	2,815.5	1,103.5	319.4
451	902	50,853.3	5,653.0	4,240.5	2,828.0	1,108.4	320.8
452	904	51,079.0	5,678.1	4,259.3	2,840.6	1,113.3	322.2
453	906	51,305.3	5,703.3	4,278.2	2,853.1	1,118.3	323.6
454	908	51,532.0	5,728.4	4,297.1	2,865.7	1,123.2	325.1
455	910	51,759.3	5,753.7	4,316.0	2,878.3	1,128.1	326.5
456	912	51,987.0	5,779.0	4,335.0	2,891.0	1,133.1	327.9
457	914	52,215.3	5,804.4	4,354.0	2,903.7	1,138.0	329.3
458	916	52,444.0	5,829.8	4,373.1	2,916.4	1,143.0	330.8
459	918	52,673.3	5,855.3	4,392.2	2,929.1	1,148.0	332.2
460	920	52,903.0	5,880.8	4,411.3	2,941.9	1,153.0	333.6
461	922	53,133.3	5,906.4	4,430.5	2,954.7	1,158.0	335.1
462	924	53,364.0	5,932.0	4,449.8	2,967.5	1,163.0	336.5
463	926	53,595.3	5,957.7	4,469.0	2,980.3	1,168.0	338.0
464	928	53,827.0	5,983.4	4,488.3	2,993.2	1,173.1	339.4
465	930	54,059.3	6,009.3	4,507.7	3,006.1	1,178.1	340.9
466	932	54,292.0	6,035.1	4,527.1	3,019.1	1,183.2	342.3
467	934	54,525.3	6,061.0	4,546.5	3,032.0	1,188.3	343.8
468	936	54,759.0	6,087.0	4,566.0	3,045.0	1,193.3	345.2

469	938	54,993.3	6,113.0	4,585.5	3,058.0	1,198.4	346.7
470	940	55,228.0	6,139.1	4,605.1	3,071.1	1,203.5	348.2
471	942	55,463.3	6,165.3	4,624.7	3,084.1	1,208.7	349.6
472	944	55,699.0	6,191.4	4,644.3	3,097.2	1,213.8	351.1
473	946	55,935.3	6,217.7	4,664.0	3,110.3	1,218.9	352.6
474	948	56,172.0	6,244.0	4,683.8	3,123.5	1,224.1	354.1
475	950	56,409.3	6,270.4	4,703.5	3,136.7	1,229.2	355.5
476	952	56,647.0	6,296.8	4,723.3	3,149.9	1,234.4	357.0
477	954	56,885.3	6,323.3	4,743.2	3,163.1	1,239.6	358.5
478	956	57,124.0	6,349.8	4,763.1	3,176.4	1,244.8	360.0
479	958	57,363.3	6,376.4	4,783.0	3,189.7	1,250.0	361.5
480	960	57,603.0	6,403.0	4,803.0	3,203.0	1,255.2	363.0
481	962	57,843.3	6,429.7	4,823.0	3,216.3	1,260.4	364.5
482	964	58,084.0	6,456.4	4,843.1	3,229.7	1,265.6	366.0
483	966	58,325.3	6,483.3	4,863.2	3,243.1	1,270.9	367.5
484	968	58,567.0	6,510.1	4,883.3	3,256.6	1,276.1	369.0
485	970	58,809.3	6,537.0	4,903.5	3,270.0	1,281.4	370.5
486	972	59,052.0	6,564.0	4,923.8	3,283.5	1,286.7	372.1
487	974	59,295.3	6,591.0	4,944.0	3,297.0	1,292.0	373.6
488	976	59,539.0	6,618.1	4,964.3	3,310.6	1,297.3	375.1
489	978	59,783.3	6,645.3	4,984.7	3,324.1	1,302.6	376.6
490	980	60,028.0	6,672.4	5,005.1	3,337.7	1,307.9	378.2
491	982	60,273.3	6,699.7	5,025.5	3,351.3	1,313.2	379.7
492	984	60,519.0	6,727.0	5,046.0	3,365.0	1,318.6	381.2
493	986	60,765.3	6,754.4	5,066.5	3,378.7	1,323.9	382.8
494	988	61,012.0	6,781.8	5,087.1	3,392.4	1,329.3	384.3
495	990	61,259.3	6,809.3	5,107.7	3,406.1	1,334.7	385.9
496	992	61,507.0	6,836.8	5,128.3	3,419.9	1,340.0	387.4
497	994	61,755.3	6,864.4	5,149.0	3,433.7	1,345.4	389.0
498	996	62,004.0	6,892.0	5,169.8	3,447.5	1,350.8	390.5
499	998	62,253.3	6,919.7	5,190.5	3,461.3	1,356.3	392.1
500	1,000	62,503.0	6,947.4	5,211.3	3,475.2	1,361.7	393.6
501	1,002	62,753.3	6,975.3	5,232.2	3,489.1	1,367.1	395.2
502	1,004	63,004.0	7,003.1	5,253.1	3,503.1	1,372.6	396.8
503	1,006	63,255.3	7,031.0	5,274.0	3,517.0	1,378.0	398.3
504	1,008	63,507.0	7,059.0	5,295.0	3,531.0	1,383.5	399.9
505	1,010	63,759.3	7,087.0	5,316.0	3,545.0	1,389.0	401.5
506	1,012	64,012.0	7,115.1	5,337.1	3,559.1	1,394.5	403.1
507	1,014	64,265.3	7,143.3	5,358.2	3,573.1	1,400.0	404.6
508	1,016	64,519.0	7,171.4	5,379.3	3,587.2	1,405.5	406.2
509	1,018	64,773.3	7,199.7	5,400.5	3,601.3	1,411.0	407.8
510	1,020	65,028.0	7,228.0	5,421.8	3,615.5	1,416.6	409.4
511	1,022	65,283.3	7,256.4	5,443.0	3,629.7	1,422.1	411.0
512	1,024	65,539.0	7,284.8	5,464.3	3,643.9	1,427.7	412.6
513	1,026	65,795.3	7,313.3	5,485.7	3,658.1	1,433.3	414.2
514	1,028	66,052.0	7,341.8	5,507.1	3,672.4	1,438.8	415.8
515	1,030	66,309.3	7,370.4	5,528.5	3,686.7	1,444.4	417.4
516	1,032	66,567.0	7,399.0	5,550.0	3,701.0	1,450.0	419.0
517	1,034	66,825.3	7,427.7	5,571.5	3,715.3	1,455.7	420.6
518	1,036	67,084.0	7,456.4	5,593.1	3,729.7	1,461.3	422.3

519	1,038	67,343.3	7,485.3	5,614.7	3,744.1	1,466.9	423.9
520	1,040	67,603.0	7,514.1	5,636.3	3,758.6	1,472.6	425.5
521	1,042	67,863.3	7,543.0	5,658.0	3,773.0	1,478.2	427.1
522	1,044	68,124.0	7,572.0	5,679.8	3,787.5	1,483.9	428.8
523	1,046	68,385.3	7,601.0	5,701.5	3,802.0	1,489.6	430.4
524	1,048	68,647.0	7,630.1	5,723.3	3,816.6	1,495.3	432.0
525	1,050	68,909.3	7,659.3	5,745.2	3,831.1	1,501.0	433.7
526	1,052	69,172.0	7,688.4	5,767.1	3,845.7	1,506.7	435.3
527	1,054	69,435.3	7,717.7	5,789.0	3,860.3	1,512.4	437.0
528	1,056	69,699.0	7,747.0	5,811.0	3,875.0	1,518.1	438.6
529	1,058	69,963.3	7,776.4	5,833.0	3,889.7	1,523.9	440.3
530	1,060	70,228.0	7,805.8	5,855.1	3,904.4	1,529.6	441.9
531	1,062	70,493.3	7,835.3	5,877.2	3,919.1	1,535.4	443.6
532	1,064	70,759.0	7,864.8	5,899.3	3,933.9	1,541.2	445.2
533	1,066	71,025.3	7,894.4	5,921.5	3,948.7	1,547.0	446.9
534	1,068	71,292.0	7,924.0	5,943.8	3,963.5	1,552.8	448.6
535	1,070	71,559.3	7,953.7	5,966.0	3,978.3	1,558.6	450.2
536	1,072	71,827.0	7,983.4	5,988.3	3,993.2	1,564.4	451.9
537	1,074	72,095.3	8,013.3	6,010.7	4,008.1	1,570.2	453.6
538	1,076	72,364.0	8,043.1	6,033.1	4,023.1	1,576.1	455.3
539	1,078	72,633.3	8,073.0	6,055.5	4,038.0	1,581.9	456.9
540	1,080	72,903.0	8,103.0	6,078.0	4,053.0	1,587.8	458.6
541	1,082	73,173.3	8,133.0	6,100.5	4,068.0	1,593.7	460.3
542	1,084	73,444.0	8,163.1	6,123.1	4,083.1	1,599.5	462.0
543	1,086	73,715.3	8,193.3	6,145.7	4,098.1	1,605.4	463.7
544	1,088	73,987.0	8,223.4	6,168.3	4,113.2	1,611.3	465.4
545	1,090	74,259.3	8,253.7	6,191.0	4,128.3	1,617.3	467.1
546	1,092	74,532.0	8,284.0	6,213.8	4,143.5	1,623.2	468.8
547	1,094	74,805.3	8,314.4	6,236.5	4,158.7	1,629.1	470.5
548	1,096	75,079.0	8,344.8	6,259.3	4,173.9	1,635.1	472.2
549	1,098	75,353.3	8,375.3	6,282.2	4,189.1	1,641.0	473.9
550	1,100	75,628.0	8,405.8	6,305.1	4,204.4	1,647.0	475.7
551	1,102	75,903.3	8,436.4	6,328.0	4,219.7	1,653.0	477.4
552	1,104	76,179.0	8,467.0	6,351.0	4,235.0	1,659.0	479.1
553	1,106	76,455.3	8,497.7	6,374.0	4,250.3	1,665.0	480.8
554	1,108	76,732.0	8,528.4	6,397.1	4,265.7	1,671.0	482.6
555	1,110	77,009.3	8,559.3	6,420.2	4,281.1	1,677.0	484.3

Note: 48 inches = 121.92 centimeters and 1 inch = 2.54 centimeters

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illustrates how the taller height of focus changes the depth of the parabola.

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Trough defined
Mirror

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