

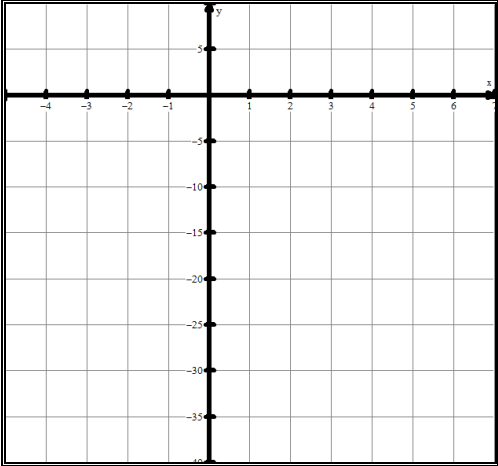
Lesson 35 – Equation Writing & Quadratic Relations – Data Analysis

(A) Lesson Objectives:

- Review factoring/solving/equations connection
- Write equations for the data sets collected
- Highlight key features on the graphs and relate them to the context of the data (vertex, roots, y-intercept)
- Introduce vertex form of the quadratic function

(B) Algebra Skill Review

- For the quadratic function $f(x) = 2x^2 - 4x - 30$

<p>Factor $f(x)$</p> <p>Solve $f(x) = 0$</p>	<p>Sketch $y = f(x)$</p> 	<p>Find the vertex of $y = f(x)$</p>
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- A quadratic function has zeroes and $x = -4$ and $x = 3$ and a y-intercept at -2 . Determine its equation and its vertex.

- Equation Writing Preview → Vertex Form

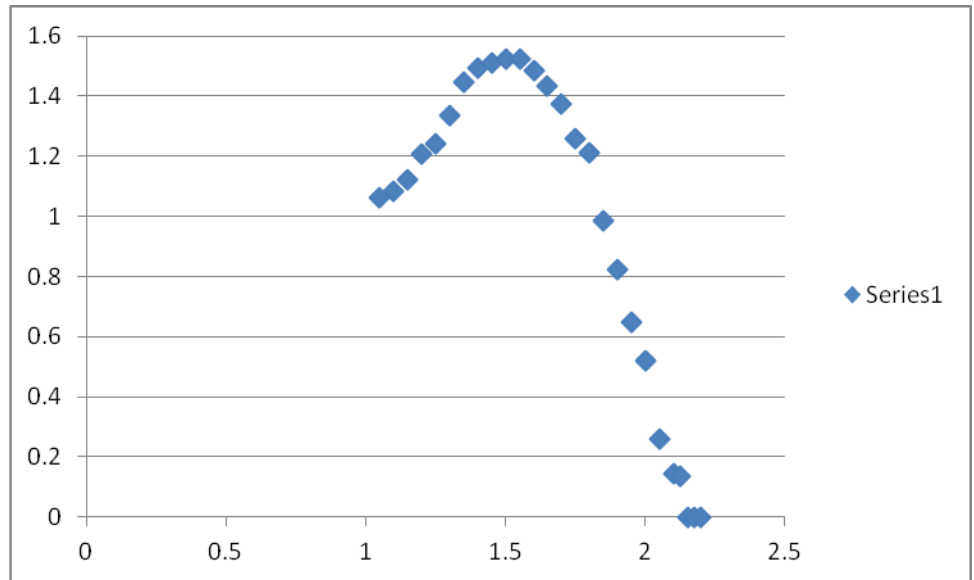
Lesson 35 – Equation Writing & Quadratic Relations – Data Analysis

(D) Data Set #2 – Pillow Toss

Data Table:

1.05	1.061
1.1	1.082
1.15	1.121
1.2	1.207
1.25	1.24
1.3	1.334
1.35	1.447
1.4	1.493
1.45	1.511
1.5	1.522
1.55	1.522
1.6	1.487
1.65	1.432
1.7	1.373
1.75	1.259
1.8	1.21
1.85	0.985
1.9	0.824
1.95	0.647
2	0.521
2.05	0.258
2.1	0.146
2.125	0.137
2.15	0

Graph (Import from EXCEL)



Equation:

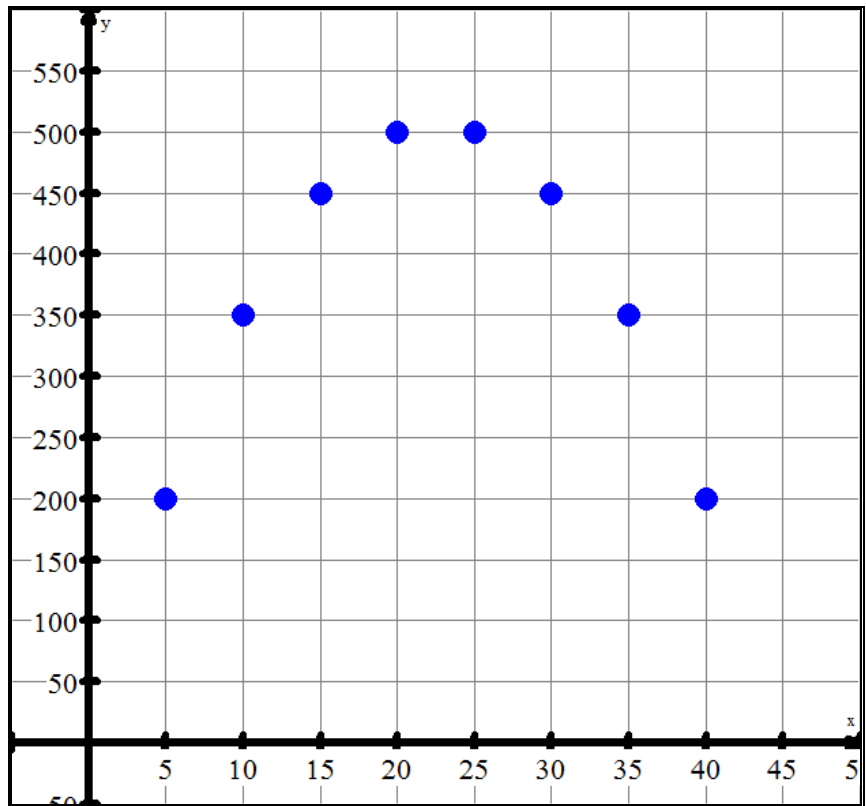
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(D) Data Set #3 – Area & Perimeter

Data Table:

Width	Area
5	200
10	350
15	450
20	500
25	500
30	450
35	350
40	200

Graph:



Equation:

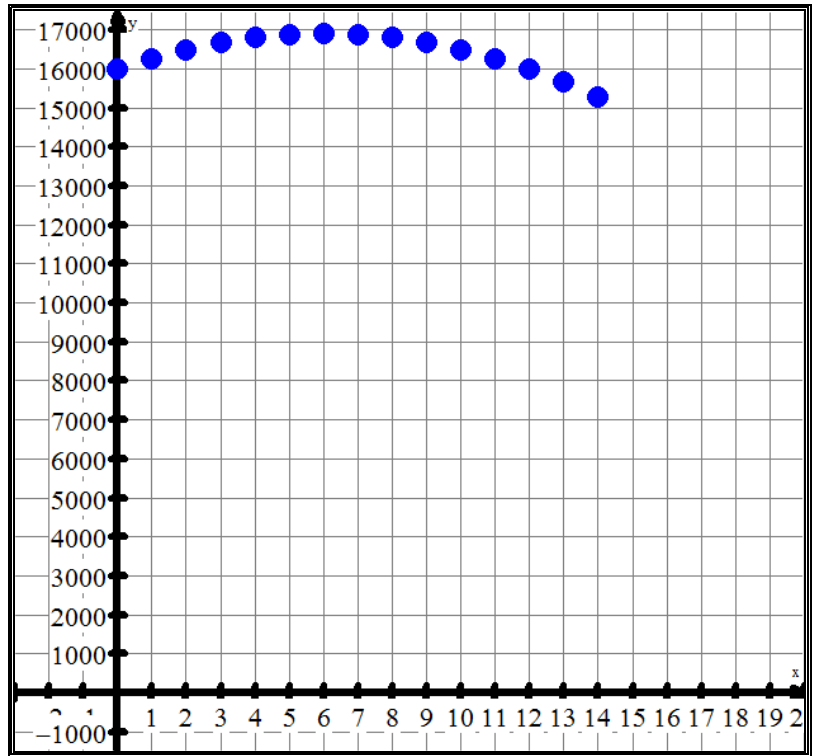
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(E) Data Set #4 – Optimizing Revenue

Data Table:

Number of Increments	Revenue
0	16,000
1	16,275
2	16,500
3	16,675
4	16,800
5	16,875
6	16,900
7	16,875
8	16,800
9	16,675
10	16,500
11	16,275
12	16,000
13	15,675
14	15,300

Graph:



Equation:

Lesson 35 – Equation Writing & Quadratic Relations – Data Analysis

(F) Data Set #5 – Pentagonal Numbers

Data Table:		Graph:
Iteration	Total Number of dots	
1		
2		
3		
4		
5		
6		
7		
8		

Equation:

