

3.5 - Model with Quadratic Equations

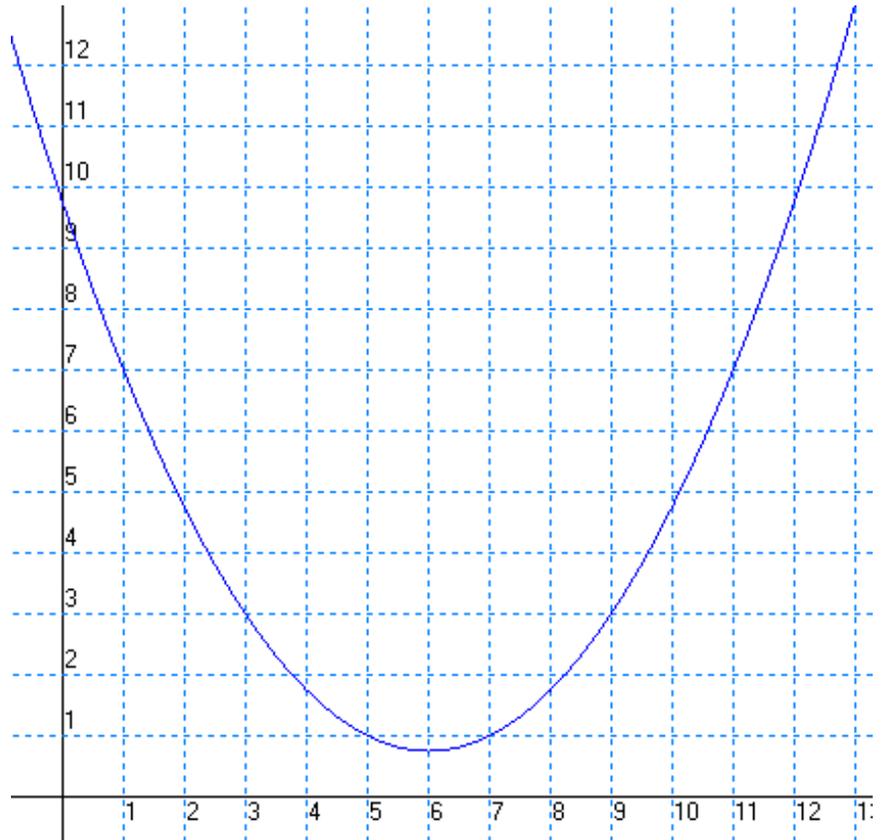
For the past 3 chapters we've looked at Quadratic Functions and how to graph them. In this section we'll look at graphs and how to write quadratic functions from them (basically going backwards from what we've been doing).

Example 1

Step 1:

You should look at important characteristics:

- X-intercepts
- Y-intercept
- Vertex
- Direction of opening



Step 2:

Choose the form of a quadratic equation that matches what you have from Step 1. Choose from:

- Standard form
- Factored form
- Vecteded form

Step 3

Choose a point on the graph to plug in as your x and y to solve for the unknown constant from the quadratic equation that you wrote from Step 2

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In Example 1 you are given a graph. In Example 2 you will be given points to plot and then draw a curve between the dots. Then, just like Example 1, you will make an equation that best represents the graph.

Example 2

Darshan is spraying water out of a hose. The water follows a quadratic path, where h is the height of the water, in metres, and d is the horizontal distance, in metres, the water travels from where it was sprayed.

d	h
0.0	0.00
0.2	3.80
0.5	5.75
0.9	6.95
1.2	6.80
1.7	4.55
2.0	2.00
2.1	0.95

a) Make a scatter plot of the data



b) Estimate the coordinates of the vertex

(Approximate by looking at the graph)

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c) Find an equation that models the data

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Homework: pg 169 #1, 2, 3, 4, 6
(Ignore all "USE TECHNOLOGY" parts)