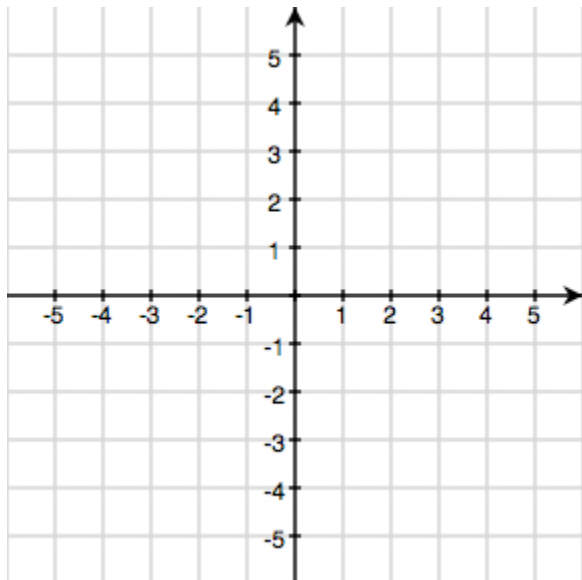




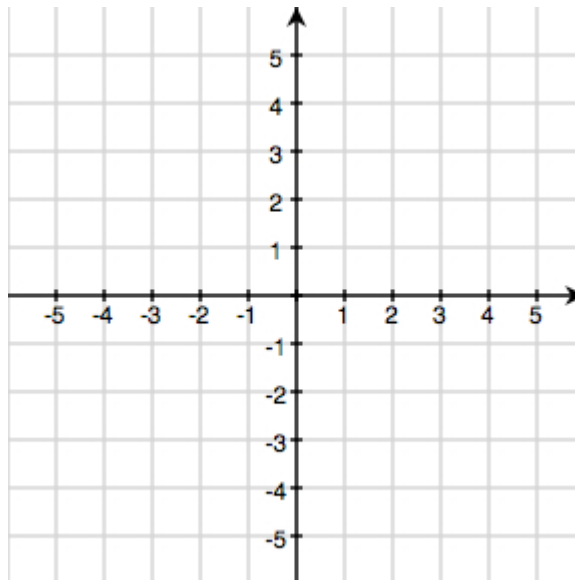
Directions Each problem below is similar to the example with the same number in your textbook. After reading through an example in your textbook, or watching one of the videos of that example on MathTV, try the matched problem to check your progress in this section. The text in blue is the learning objective associated with the matched problems that appear below the objective.

Objective A Graph a parabola. (Problem Set exercises 1 – 38 are similar.)

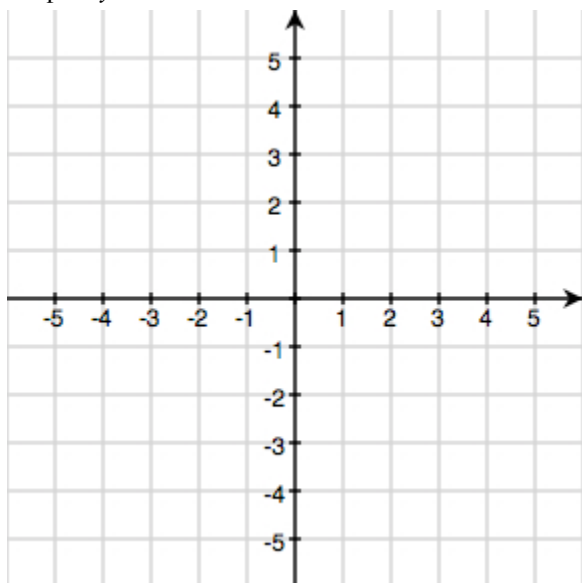
1. Graph: $y = x^2 - 2x - 3$



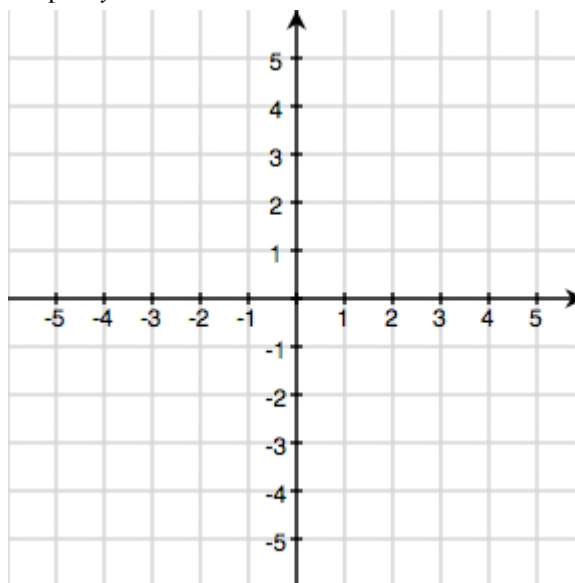
2. Graph: $y = -x^2 + 2x + 8$



3. Graph: $y = 2x^2 - 4x + 1$



4. Graph: $y = -x^2 + 4x - 5$





Objective B Solve application problems using information from a graph. (Problem Set exercises 39 – 46 are similar.)

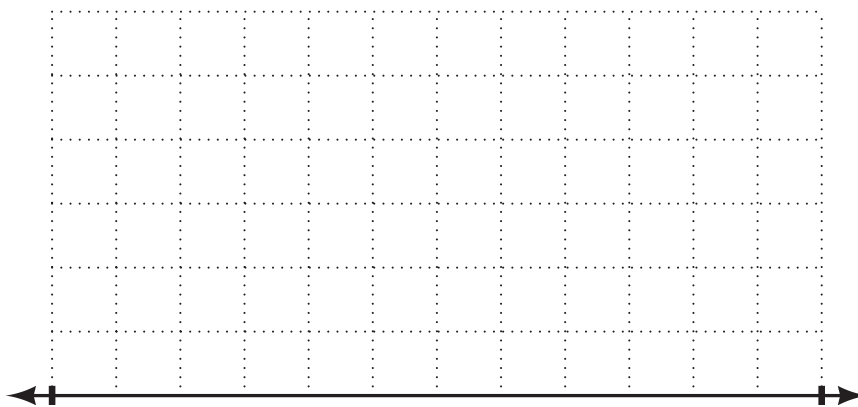
5. Find the largest value of y if

$$y = -0.01x^2 + 12x - 400 .$$

6. An art supply store finds that they can sell x sketch pads each week at p dollars each according to the equation $x = 800 - 200p$. Graph the revenue equation $R = xp$. Then use the graph to find the price that will bring in the maximum revenue. Also, find the maximum revenue.

Objective C Find an equation from its graph. (Problem Set exercises 47 – 48 are similar.)

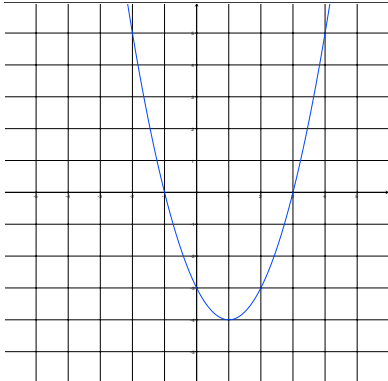
7. Assume David Smith, Jr., The Bullet, was shot from a cannon and he reached a maximum height of 80 feet before landing in a net 160 feet from the cannon. Sketch the graph of his path, and then find the equation of the graph.



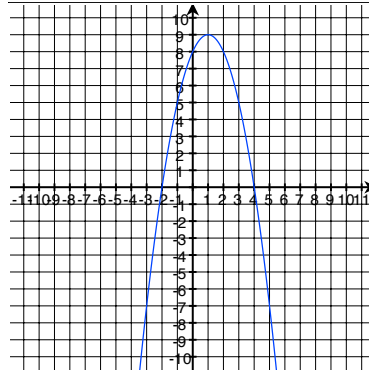


Answers

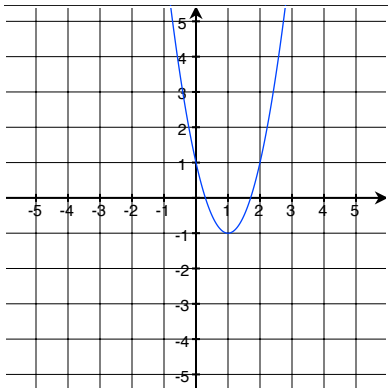
1. Graph: $y = x^2 - 2x - 3$



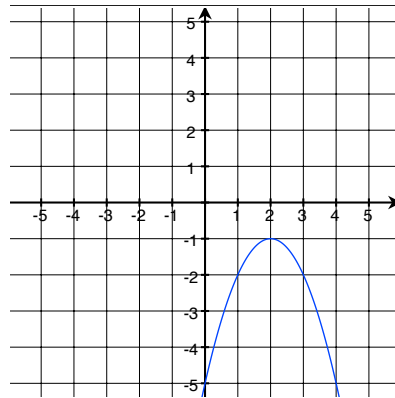
2. Graph: $y = -x^2 + 2x + 8$



3. Graph: $y = 2x^2 - 4x + 1$



4. Graph: $y = -x^2 + 4x - 5$



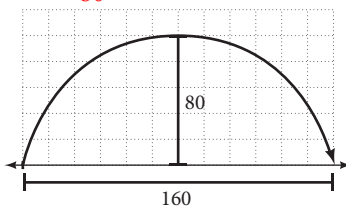
5. Find the largest value of y if $y = -0.01x^2 + 12x - 400$.
 $y = 3,200$

6. An art supply store finds that they can sell x sketch pads each week at p dollars each according to the equation $x = 800 - 200p$. Graph the revenue equation $R = xp$. Then use the graph to find the price that will bring in the maximum revenue. Also, find the maximum revenue.

$R = -200p^2 + 800p$ Maximum revenue is \$800 when the price is \$2 each.

7. Assume David Smith, Jr., The Bullet, was shot from a cannon and he reached a maximum height of 80 feet before landing in a net 160 feet from the cannon. Sketch the graph of his path, and then find the equation of the graph.

$y = -\frac{1}{80}(x - 80)^2 + 80$





Matched Problems with Objectives Name _____

Graphing Parabolas

Date _____

More about Objectives

Objective A Graph a parabola.

The graph of a quadratic function is called a parabola. This graph has many important uses and applications, as you will see in your study of algebra. Make sure you get plenty of practice with graphing parabolas.

Objective B Solve application problems using information from a graph.

In this section we present a few examples of applications of parabolas. You can use the vertex of a parabola to find the maximum or minimum in many problems. If you go on to take a business calculus class, you will see more of these types of problems.

Objective C Find an equation from its graph.

These problems should reinforce the characteristics of the graph of a parabola. You are given the information about a parabola and asked to find its equation. Reversing the process reinforces the concepts learned.

