Review Lesson 12
Describing Parabolas

NAME:

Start by navigating to the Online Lesson for instructions.

Objectives

- Write a quadratic equation in vertex form.
- Describe the transformation of a parabola.

Introduced in:

Algebra 1: Principles of Secondary Mathematics
Lesson 27B

Describing Parabolas

Fill in the notes as you watch the video in the Online Lesson.

- The vertex form of a quadratic equation is written as:
- The _____ of a parabola is located at the point (h, k).
- The coefficient a determines the _____ and _____ of a parabola.
- The variables a, h, and k transform a parabola as compared to the parent graph, $y = x^2$. When transformations to the parent graph occur:
  - _____ reflects over the x-axis and stretches/compresses (dilates) the graph.
  - _____ translates (shifts) the graph left or right.
  - _____ translates (shifts) the graph up or down.

Example 1

Complete the example as you watch the video in the Online Lesson.

Identify a, h, and k. Name the vertex and the direction of the graph.

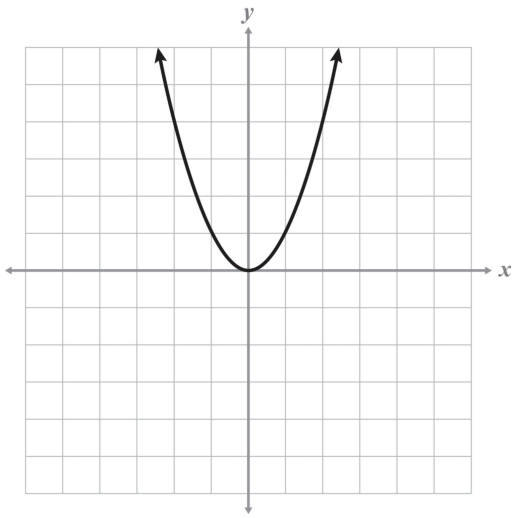
$y = 6(x - 3)^2 - 1$

Example 2

Complete the example as you watch the video in the Online Lesson.

Describe the transformation from the parent function. Explain your reasoning. Graph.

$y = -(x-3)^2 + 1$



Practice

Use substitution to write the quadratic equation in vertex form.

1) $a = 6,\ h = 14,\ k = -8$

2) $a = -4,\ h = -9,\ k = -2$

3) $a = \frac{1}{3},\ h = 7,\ k = 10$

4) $a = 8,\ h = 0,\ k = 5$

Identify a, h, and k. Name the vertex and the direction of the graph.

5) $y = 2(x - 3)^2 + 7$

6) $y = \frac{1}{2}(x + 2)^2 + 5$

Identify a, h, and k. Name the vertex and the direction of the graph.

7) $y = (x-6)^2 - 8$

8) $y = -(x-4)^2 + 10$

Describe the transformation from the parent function. Explain your reasoning.

9) $y = (x-2)^2 - 4$

10) $y = -(x+1)^2 + 2$

11) $y = (x-3)^2 + 12$

12) $y = -(x+3)^2 - 1$

To continue, return to the Online Lesson.