

## Section 4.7 Notes Day 2

**Objectives:** Write a quadratic equation given graph or given vertex and a point.

**Warm-Up:**

Identify if the parabola opens up/down, the vertex, axis of symmetry, max/min value of each equation.

$$y = -2(x + 4)^2 + 6$$

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

$$y = -x^2 + 3$$

Up/Down:      Vertex:

Up/Down:      Vertex:

Up/Down:      Vertex:

Axis of Symmetry:

Axis of Symmetry:

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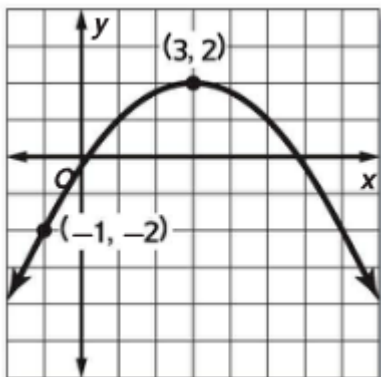
Max/Min Value:

Max/Min Value:

Max/Min Value:

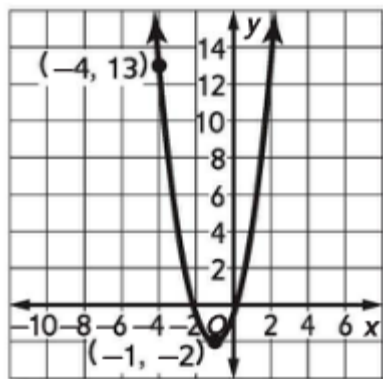
**If the vertex and one additional point on the graph of a parabola are known, you can write the equation of the parabola in vertex form.**

**Write the equation of the function shown in the graph:**

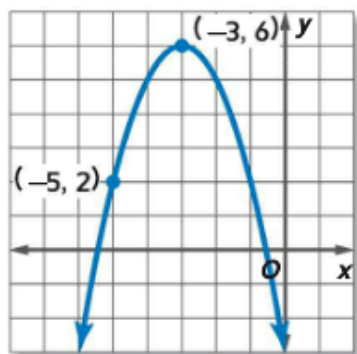


The vertex of the parabola is at (\_\_\_\_, \_\_\_\_), so  $h =$  \_\_\_\_  
 and  $k =$  \_\_\_\_\_. Since (\_\_\_\_, \_\_\_\_\_) is a point on the  
 graph, let  $x =$  \_\_\_\_ and  $y =$  \_\_\_\_\_. Substitute these  
 values into the vertex form of the equation and solve for  $a$ .  
 $y = a(x - h)^2 + k \gg$  \_\_\_\_\_

**Write the equation of the function shown in the graphs:**



1)



2)

The same work can be done when not given the graph, but still given the vertex and a point.

Write the equation of the function that has a vertex at ( 2, - 56) and goes through the point (6, 8).

The vertex of the parabola is at (\_\_\_\_, \_\_\_\_), so  $h =$  \_\_\_\_

and  $k =$  \_\_\_\_ . Since (\_\_\_\_, \_\_\_\_ ) is a point on the

graph, let  $x =$  \_\_\_\_ and  $y =$  \_\_\_\_ . Substitute these

values into the vertex form of the equation and solve for  $a$  .

$$y = a(x - h)^2 + k \quad \gg \quad \underline{\hspace{4cm}}$$

3) Write the equation of the function that has a vertex at ( 6, 1) and goes through the point (7, 10).

4) Write the equation of the function that has a vertex at ( 3, 0) and goes through the point (6, -6).

5) Write the equation of the function that has a vertex at ( 0, 5) and goes through the point (3, 8).