

Algebra 2 Unit 7a 7.3 Day 3 Class Work Completing the Square and Graphing

1. Use completing the square to change to vertex form.

a.  $y = x^2 - 22x + 10$

b.  $y = 2x^2 - 24x + 7$

c.  $y = -3x^2 + 15x - 13$

d.  $y = \frac{1}{2}(x-12)(x+28)$

Hint: First write in general form.

2. a. Write the coordinates of the vertex for each function in #1.

b. Challenge Problem:

Find a relationship between the values of a and b in the general form and the value of h in vertex form.

3. Graph each quadratic function on graph paper. Label the vertex and x-intercepts.

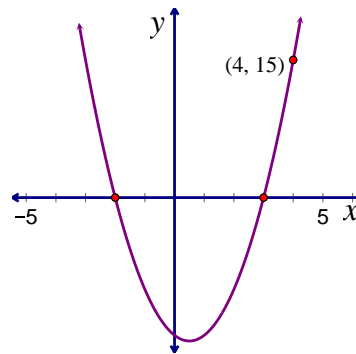
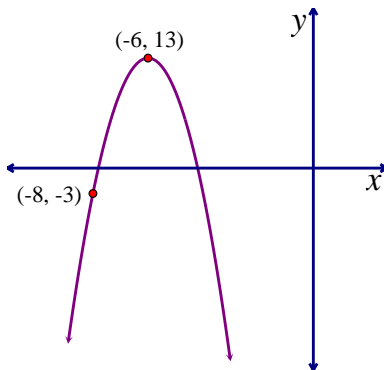
a.  $y = \frac{1}{3}(x+2)(x-10)$

b.  $y = -2(x+3)^2 + 8$

4. Write the equation of the graph in:

a. vertex form and general form.

b. factored form, vertex form and general form.



Algebra 2 Unit 7a 7.3 Day 3 Class Work Completing the Square and Graphing

1. Use completing the square to change to vertex form.

a.  $y = x^2 - 22x + 10$

b.  $y = 2x^2 - 24x + 7$

c.  $y = -3x^2 + 15x - 13$

d.  $y = \frac{1}{2}(x-12)(x+28)$

Hint: First write in general form.

2. a. Write the coordinates of the vertex for each function in #1.

b. Challenge Problem:

Find a relationship between the values of a and b in the general form and the value of h in vertex form.

3. Graph each quadratic function on graph paper. Label the vertex and x-intercepts.

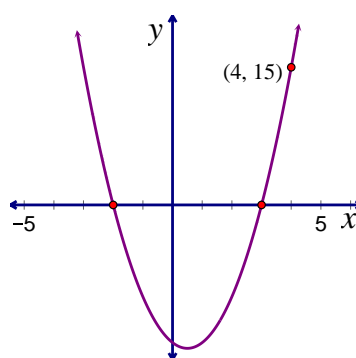
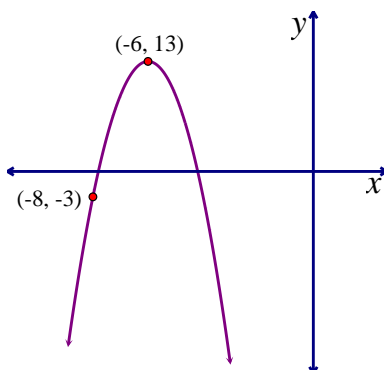
a.  $y = \frac{1}{3}(x+2)(x-10)$

b.  $y = -2(x+3)^2 + 8$

4. Write the equation of the graph in:

a. vertex form and general form.

b. factored form, vertex form and general form.



7.3 Day 3 Class Work Answers

1.

a.  $y = (x-11)^2 - 111$       b.  $y = 2(x-6)^2 - 65$       c.  $y = -3\left(x - \frac{5}{2}\right)^2 + \frac{23}{4}$       d.  $y = \frac{1}{2}(x+8)^2 - 200$

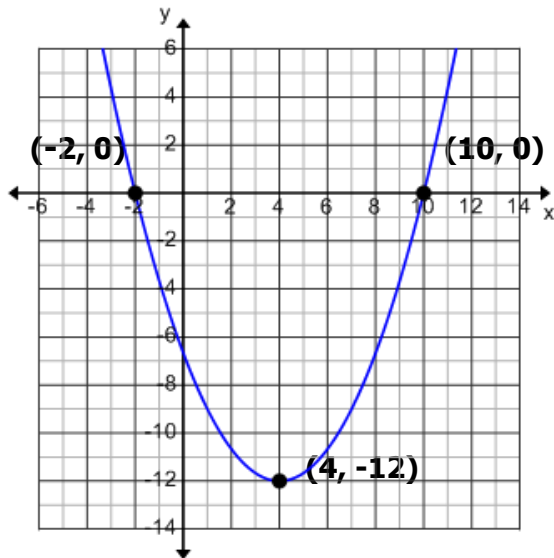
Hint: First write in general form.

2. a.  $(11, -111)$        $(6, -65)$        $\left(\frac{5}{2}, \frac{23}{4}\right)$        $(-8, -200)$

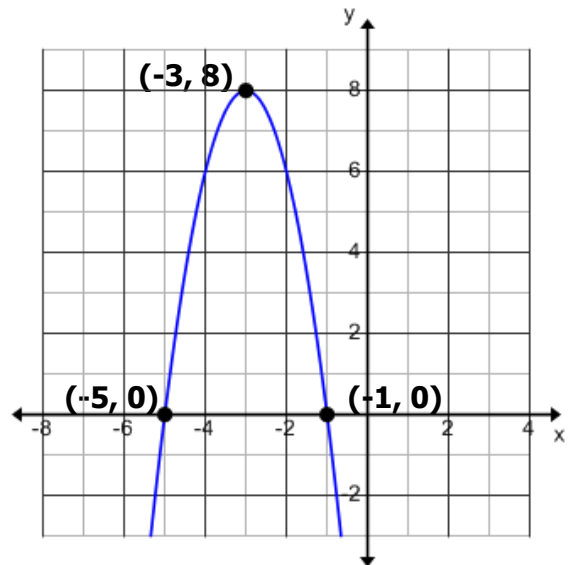
b.  $h = \frac{-b}{2a}$

3.

a.



b.



4. Write the equation of the graph in factored form, vertex form and general form.

a.  $y = -4(x+6)^2 + 13$   
 $y = -4x^2 - 48x - 131$

b.  $y = \frac{5}{2}\left(x + \frac{1}{2}\right)^2 - \frac{125}{8}$

$y = \frac{5}{2}x^2 - \frac{5}{2}x - 15$

$y = \frac{5}{2}(x+2)(x-3)$