SM 2

Name:_____Period:_____

6.1 Graphing Quadratic Functions: Vertex and Axis of Symmetry

Write the form each quadratic equation is in. Find the vertex and the direction of the opening of the graph for each of the following quadratic equations. Find the *y*-intercept and axis of symmetry.

1. $y = (x-4)^2 + 3$

   $h =$ _____ , $k =$ _____

   Form: _____

   Vertex:_____

   Axis of Symmetry: _____

   Direction of opening:_____

   y-intercept: _____

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

   $h =$ _____ , $k =$ _____

   Form: _____

   Vertex:_____

   Axis of Symmetry: _____

   Direction of opening:_____

   y-intercept: _____

3. $y = x^2 - 2x - 11$

   $a =$ _____ , $b =$ _____

   Form: _____

   Vertex:_____

   Axis of Symmetry: _____

   Direction of opening:_____

   y-intercept: _____

4. $f(x) = -2x^2 + 8x - 58$

   $a =$ _____ , $b =$ _____

   Form: _____

   Vertex:_____

   Axis of Symmetry: _____

   Direction of opening:_____

   y-intercept: _____

5. $y = (x - 3)(x - 7)$

$a =$ _____ , $b =$ _____

Form: _____

Vertex:_____

Axis of Symmetry: _____

Direction of opening:_____

y-intercept: _____

6. $f(x) = (x + 2)(x - 6)$

$a =$ _____ , $b =$ _____

Form: _____

Vertex:_____

Axis of Symmetry: _____

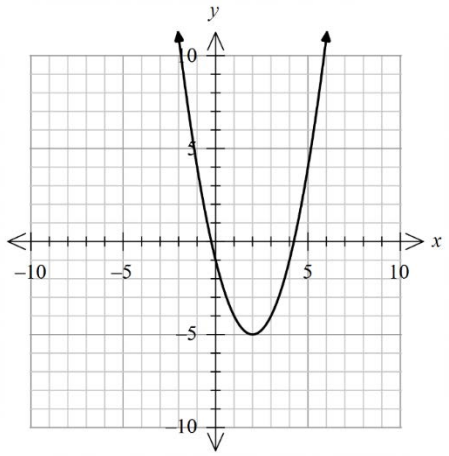
Direction of opening:_____

y-intercept: _____

6a. What do the vertex and axis of symmetry always have in common?

For each of the following graphs, find the vertex, axis of symmetry, and y-intercept.

7.



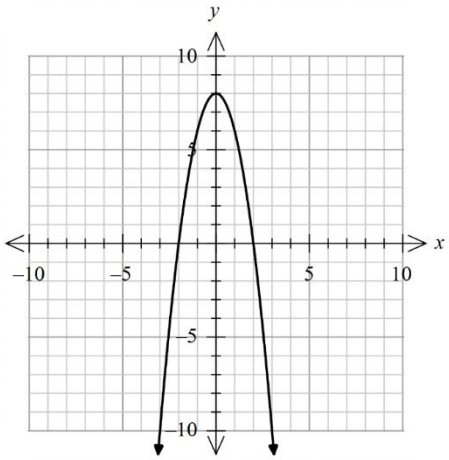
Vertex: _____

Axis of Symmetry: _____

y-intercept: _____

is the value of "a" positive or negative? _____

8.



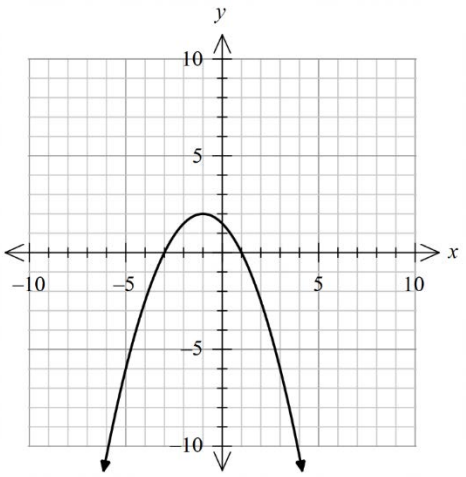
Vertex: _____

Axis of Symmetry: _____

y-intercept: _____

is the value of "a" positive or negative? ___

9.



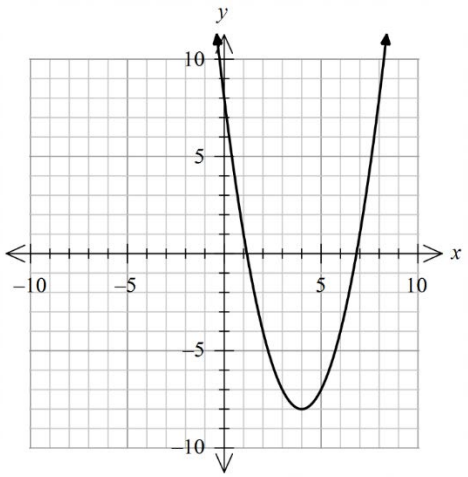
Vertex: _____

Axis of Symmetry: _____

y-intercept: _____

is the value of "a" positive or negative? _____

10.



Vertex: _____

Axis of Symmetry: _____

y-intercept: _____

is the value of "a" positive or negative? ___

Solve.

11. $(x+3)(2x-5)=0$

12. $-3(x-7)^2+45=0$

13. $4x^2-11=3x$