

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Vertex Form of a Quadratic

$$y = a(x - h)^2 + k$$

Vertex: (h,k)

Describe the transformations of the parent graph for each equation.

1.  $f(x) = x^2 + 5$

- a: \_\_\_\_\_
- h: \_\_\_\_\_
- k: \_\_\_\_\_

2.  $f(x) = -(x + 9)^2 - 2$

- a: \_\_\_\_\_
- h: \_\_\_\_\_
- k: \_\_\_\_\_

3.  $f(x) = \frac{1}{2}(x - 10)^2$

- a: \_\_\_\_\_
- h: \_\_\_\_\_
- k: \_\_\_\_\_

4.  $f(x) = -5x^2 + 2$

- a: \_\_\_\_\_
- h: \_\_\_\_\_
- k: \_\_\_\_\_

5.  $f(x) = \frac{2}{3}(x - 8)^2$

- a: \_\_\_\_\_
- h: \_\_\_\_\_
- k: \_\_\_\_\_

6.  $f(x) = (x + 1)^2 + 4$

- a: \_\_\_\_\_
- h: \_\_\_\_\_
- k: \_\_\_\_\_

Write the quadratic equation in vertex form that has been...

\_\_\_\_\_ 7. shifted to the right 4 and up 3

\_\_\_\_\_ 8. reflected over the x-axis and shifted left 11

\_\_\_\_\_ 9. moved down 17

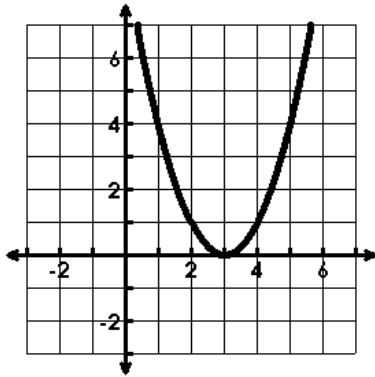
\_\_\_\_\_ 10. reflected over the x-axis, shifted left 9 and down 8.

**Describe the transformations and write an equation for each quadratic function.**

11. Vertex: \_\_\_\_\_

- a: \_\_\_\_\_
- h: \_\_\_\_\_
- k: \_\_\_\_\_

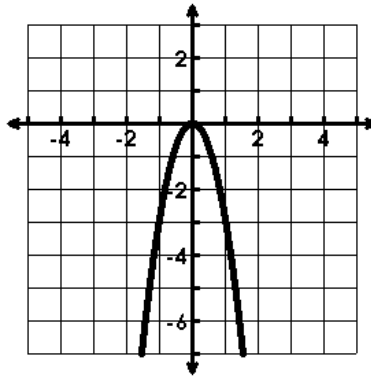
$f(x) =$  \_\_\_\_\_



12. Vertex: \_\_\_\_\_

- a: \_\_\_\_\_
- h: \_\_\_\_\_
- k: \_\_\_\_\_

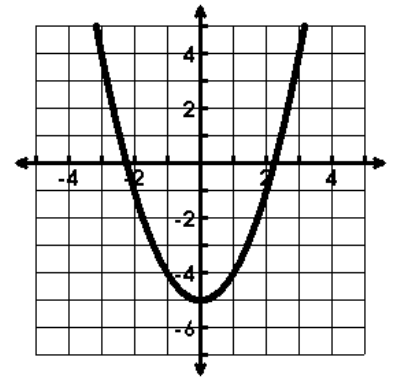
$f(x) =$  \_\_\_\_\_



13. Vertex: \_\_\_\_\_

- a: \_\_\_\_\_
- h: \_\_\_\_\_
- k: \_\_\_\_\_

$f(x) =$  \_\_\_\_\_

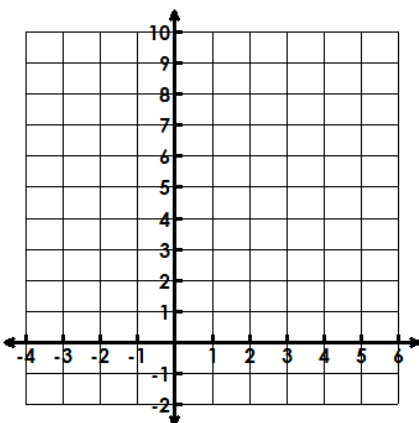


**Graph the following equations Identify the vertex and the axis of symmetry.**

14.  $f(x) = 2(x - 1)^2$

Vertex: \_\_\_\_\_

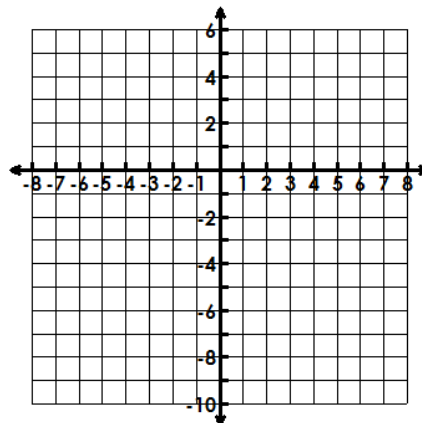
Axis of Symmetry:  $x =$  \_\_\_\_\_



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

Vertex: \_\_\_\_\_

Axis of Symmetry:  $x =$  \_\_\_\_\_



16.  $f(x) = -3(x + 1)^2 - 3$

Vertex: \_\_\_\_\_

Axis of Symmetry:  $x =$  \_\_\_\_\_

