

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

### Converting Forms of a Quadratic

Convert from vertex form to standard form.

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

$$F(x) = (x+4)(x+4) + 5$$

$$F(x) = x^2 + 4x + 4x + 16 + 5$$

$$F(x) = x^2 + 8x + 21$$

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

3.  $f(x) = 2(x-2)^2 - 3$

$$F(x) = 2(x-2)(x-2) - 3$$

$$F(x) = 2(x^2 - 2x - 2x + 4) - 3$$

$$F(x) = 2x^2 - 4x - 4x + 8 - 3$$

$$F(x) = 2x^2 - 8x + 5$$

Convert from standard form to vertex form by using  $h = -b/2a$ . Then, give the axis of symmetry and vertex.

4.  $f(x) = x^2 + 4x + 3$

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

6.  $f(x) = 2x^2 - 8x + 17$

$$h = \frac{-b}{2a} = \frac{-(-2)}{2(1)} = \frac{2}{2} = 1$$

$$k = f(1) = (1)^2 - 2(1) + 5 = 4$$

$$a = 1$$

$$F(x) = (x-1)^2 + 4$$

Vertex:  $(1, 4)$ A.o.S:  $x = 1$

Convert from standard form to vertex form by using the calculator. Then, give the axis of symmetry and vertex.

7.  $f(x) = x^2 - 8x + 15$

$a = 1$

$F(x) = (x - 4)^2 - 1$

$h = 4$

vertex:  $(4, -1)$

$k = -1$

A.o.S.:  $x = 4$

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

9.  $f(x) = 2x^2 + 12x + 7$

$a = 2$

$f(x) = 2(x + 3)^2 - 11$

$h = -3$

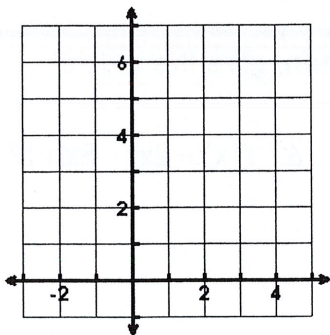
vertex:  $(-3, -11)$

$k = -11$

A.o.S.:  $x = -3$

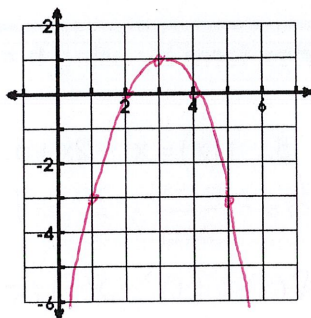
### Graphing in Standard Form Practice

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



11.  $f(x) = -x^2 + 6x - 8$

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



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

