

## Vertex Form of Parabolas

Date \_\_\_\_\_ Period \_\_\_\_\_

**Use the information provided to write the vertex form equation of each parabola.**

1)  $y = x^2 + 16x + 71$

2)  $y = x^2 - 2x - 5$

3)  $y = -x^2 - 14x - 59$

4)  $y = 2x^2 + 36x + 170$

5)  $y = x^2 - 12x + 46$

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

7)  $y = -\frac{1}{3}(x - 3)(x - 7)$

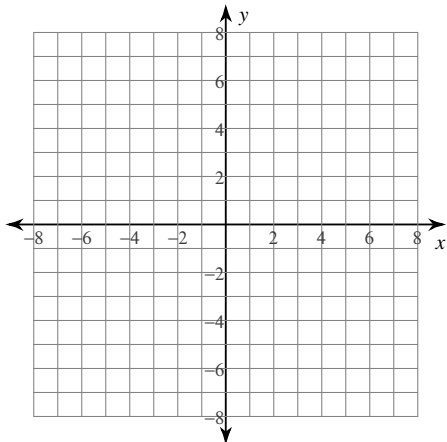
8)  $y + 60x + 294 = -3x^2$

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

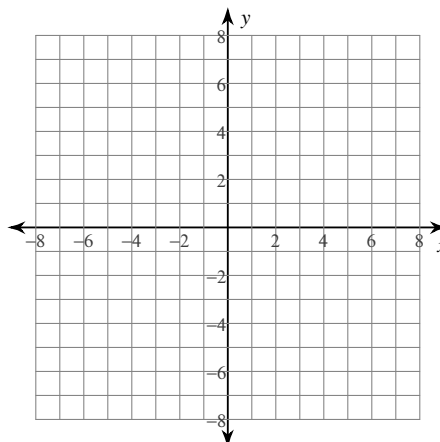
10)  $y = -2(x + 4)(x - 2)$

Identify the vertex and axis of symmetry of each. Then sketch the graph.

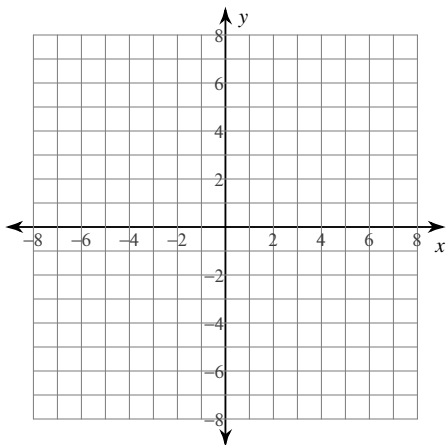
11)  $f(x) = 2(x + 4)^2 - 5$



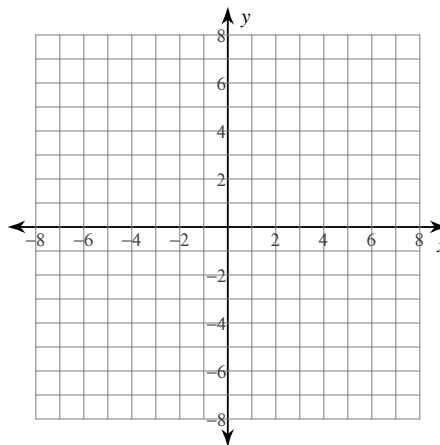
12)  $f(x) = -\frac{1}{4}(x + 4)^2 - 5$



13)  $f(x) = -(x - 6)^2 + 2$



14)  $f(x) = -(x - 5)^2 - 1$



## Vertex Form of Parabolas

Use the information provided to write the vertex form equation of each parabola.

1)  $y = x^2 + 16x + 71$

$$y = (x + 8)^2 + 7$$

2)  $y = x^2 - 2x - 5$

$$y = (x - 1)^2 - 6$$

3)  $y = -x^2 - 14x - 59$

$$y = -(x + 7)^2 - 10$$

4)  $y = 2x^2 + 36x + 170$

$$y = 2(x + 9)^2 + 8$$

5)  $y = x^2 - 12x + 46$

$$y = (x - 6)^2 + 10$$

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

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

7)  $y = -\frac{1}{3}(x - 3)(x - 7)$

$$y = -\frac{1}{3}(x - 5)^2 + \frac{4}{3}$$

8)  $y + 60x + 294 = -3x^2$

$$y = -3(x + 10)^2 + 6$$

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

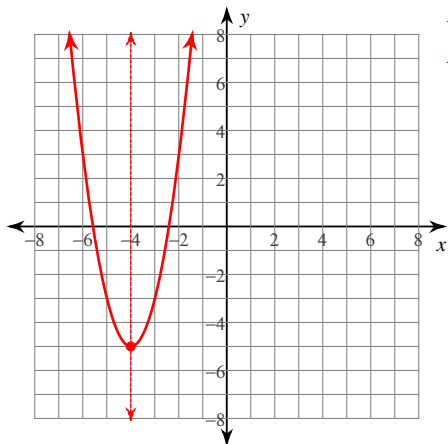
$$y = -(x - 4)^2 - 1$$

10)  $y = -2(x + 4)(x - 2)$

$$y = -2(x + 1)^2 + 18$$

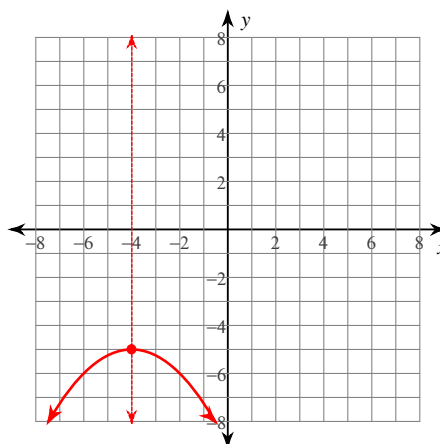
Identify the vertex and axis of symmetry of each. Then sketch the graph.

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



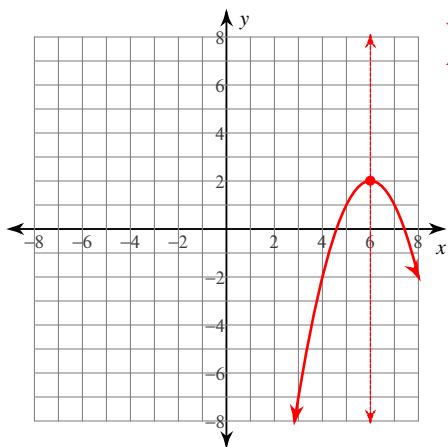
Vertex:  $(-4, -5)$   
Axis of Sym.:  $x = -4$

12)  $f(x) = -\frac{1}{4}(x + 4)^2 - 5$



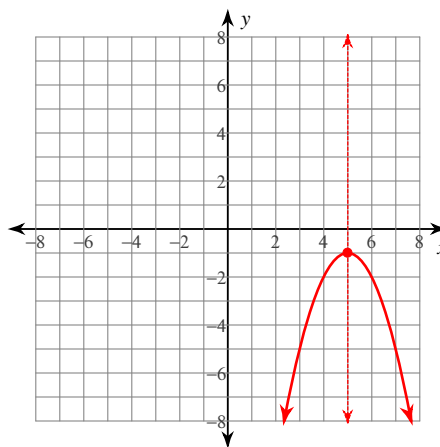
Vertex:  $(-4, -5)$   
Axis of Sym.:  $x = -4$

13)  $f(x) = -(x - 6)^2 + 2$



Vertex:  $(6, 2)$   
Axis of Sym.:  $x = 6$

14)  $f(x) = -(x - 5)^2 - 1$



Vertex:  $(5, -1)$   
Axis of Sym.:  $x = 5$