

General to Standard Form 1

Use the information provided to write the standard form equation of each function.

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) $y = x^2 - 6x + 5$

8) $y = (x + 5)(x + 4)$

9) $\frac{1}{2}(y + 4) = (x - 7)^2$

10) $6x^2 + 12x + y + 13 = 0$

11) $162x + 731 = -y - 9x^2$

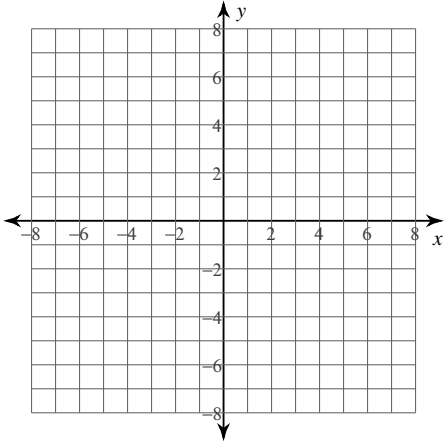
12) $x^2 - 12x + y + 40 = 0$

13) $y = x^2 + 10x + 33$

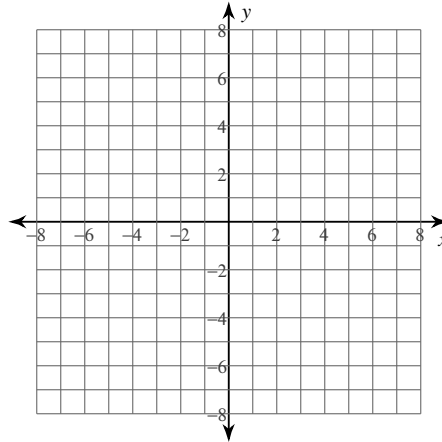
14) $y + 6 = (x + 3)^2$

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

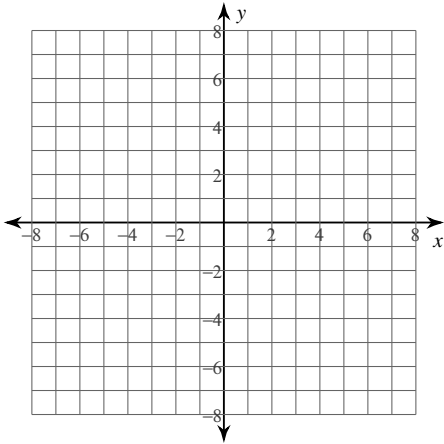
15) $f(x) = -3(x - 2)^2 - 4$



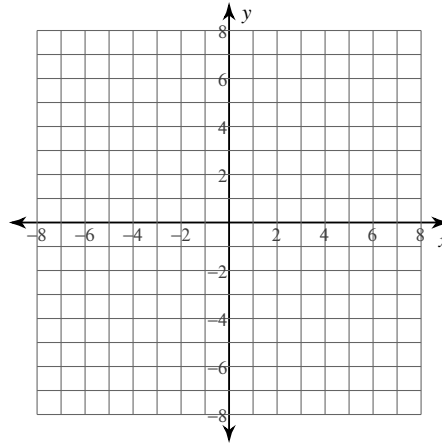
16) $f(x) = -\frac{1}{4}(x - 1)^2 + 4$



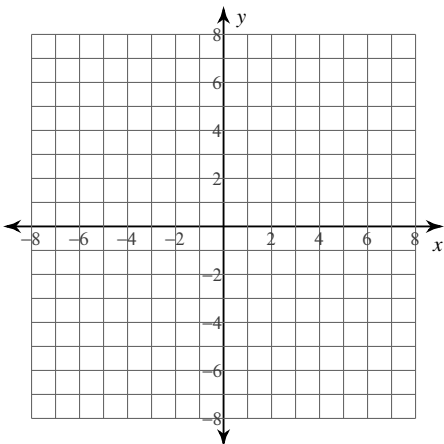
17) $f(x) = \frac{1}{4}(x + 4)^2 + 3$



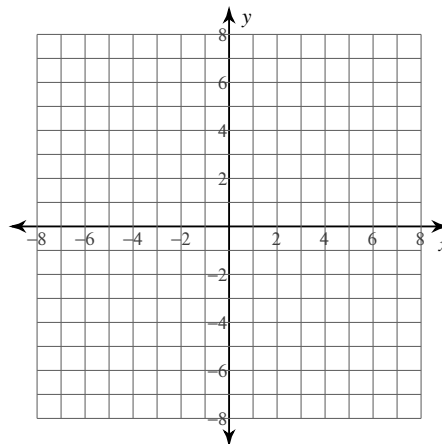
18) $f(x) = \frac{1}{4}(x + 5)^2 + 2$



19) $f(x) = -2(x + 5)^2 - 3$



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



ANSWERS

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

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

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

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

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

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

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

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

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

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

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

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

$$7) y = x^2 - 6x + 5$$

$$y = (x - 3)^2 - 4$$

$$8) y = (x + 5)(x + 4)$$

$$y = \left(x + \frac{9}{2}\right)^2 - \frac{1}{4}$$

$$9) \frac{1}{2}(y + 4) = (x - 7)^2$$

$$y = 2(x - 7)^2 - 4$$

$$10) 6x^2 + 12x + y + 13 = 0$$

$$y = -6(x + 1)^2 - 7$$

$$11) 162x + 731 = -y - 9x^2$$

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

$$12) x^2 - 12x + y + 40 = 0$$

$$y = -(x - 6)^2 - 4$$

$$13) y = x^2 + 10x + 33$$

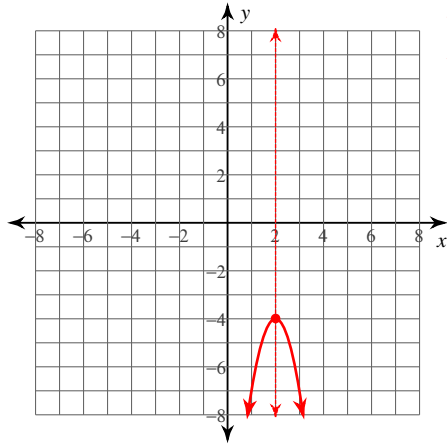
$$y = (x + 5)^2 + 8$$

$$14) y + 6 = (x + 3)^2$$

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

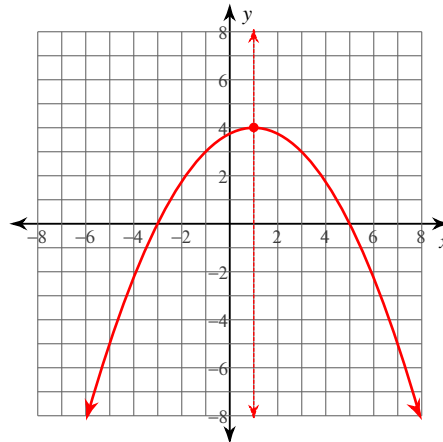
ANSWERS.

15) $f(x) = -3(x - 2)^2 - 4$



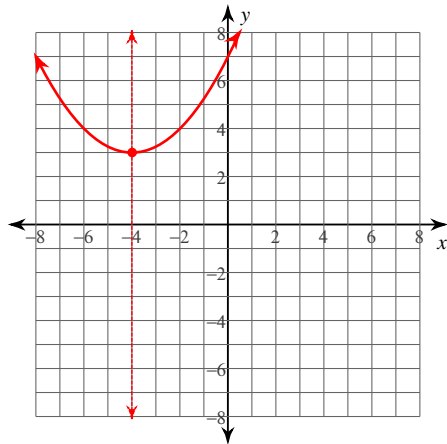
Vertex: (2, -4)
Axis of Sym.: $x = 2$

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



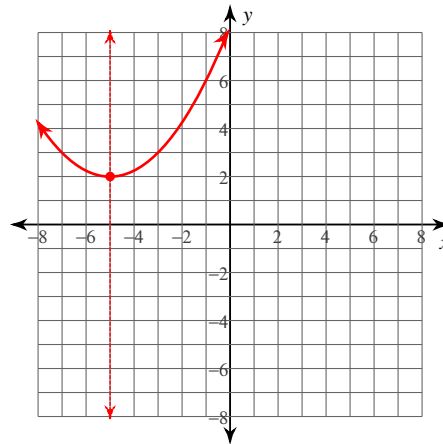
Vertex: (1, 4)
Axis of Sym.: $x = 1$

17) $f(x) = \frac{1}{4}(x + 4)^2 + 3$



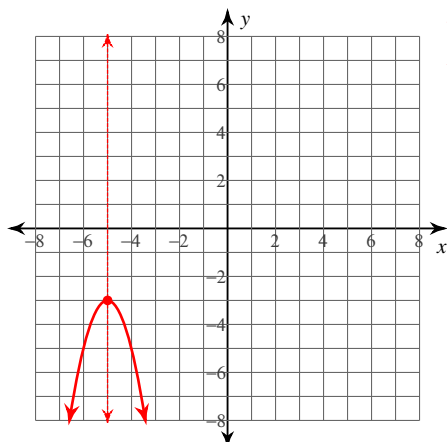
Vertex: (-4, 3)
Axis of Sym.: $x = -4$

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



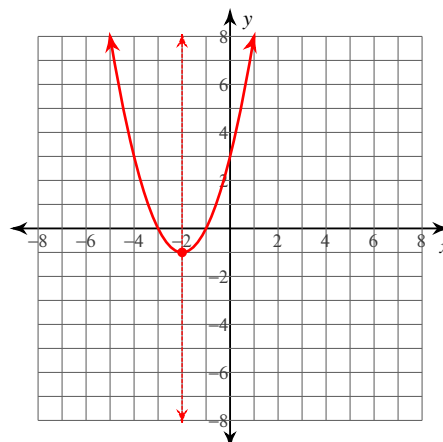
Vertex: (-5, 2)
Axis of Sym.: $x = -5$

19) $f(x) = -2(x + 5)^2 - 3$



Vertex: (-5, -3)
Axis of Sym.: $x = -5$

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



Vertex: (-2, -1)
Axis of Sym.: $x = -2$