

## Assignment

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

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

1)  $y = -2x^2 - 20x - 51$

A)  $y = -2(x - 1)^2 - 5$

B)  $y = -2(x - 1)^2 + 5$

C)  $y = 2(x + 5)^2 - 1$

D)  $y = -2(x + 5)^2 - 1$

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

A)  $y = -(x - 3)^2 + 7$

B)  $y = (x - 3)^2 + 7$

C)  $y = 0(5x - 3)^2 + 7$

D)  $y = 2(x - 7)^2 - 3$

3)  $y = 2x^2 + 20x + 49$

A)  $y = 2(x - 1)^2 - 5$

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

C)  $y = 2(x + 5)^2 - 1$

D)  $y = 2(2x + 5)^2 + 1$

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

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

B)  $y = 2x^2 - 4$

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

D)  $y = x^2 - 4$

5)  $y = -2x^2 + 24x - 64$

A)  $y = -2(x - 6)^2 + 8$

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

C)  $y = -2(x + 8)^2 + 6$

D)  $y = 2(x - 6)^2 + 8$

6)  $y = -4x^2 + 64x - 255$

A)  $y = 4(x + 1)^2 + 8$

B)  $y = 4(x - 8)^2 + 1$

C)  $y = 4(x + 10)^2$

D)  $y = -4(x - 8)^2 + 1$

7)  $y = -2x^2 + 32x - 123$

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

B)  $y = -2(x - 8)^2 + 6$

C)  $y = -2(4x - 8)^2 + 5$

D)  $y = -2(3x - 8)^2 - 5$

8)  $y = 2x^2 + 28x + 91$

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

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

C)  $y = 2(x + 7)^2 + 9$

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

9)  $y = 6x^2 - 96x + 376$

A)  $y = -6(x - 8)^2 + 8$

B)  $y = -6(x - 8)^2 - 8$

C)  $y = 6(-x - 8)^2 - 8$

D)  $y = 6(x - 8)^2 - 8$

10)  $y = x^2 + 10x + 25$

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

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

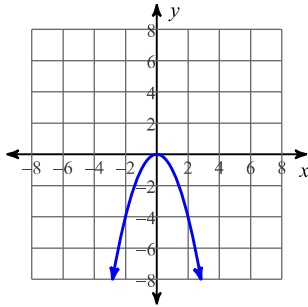
C)  $y = (x + 5)^2$

D)  $y = -(x + 5)^2$

Identify the vertex, axis of symmetry, direction of opening, and min/max value of each. Then sketch the graph.

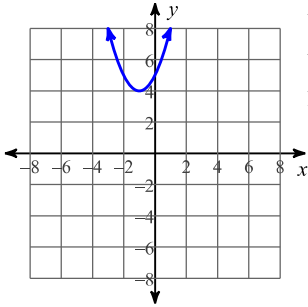
11)  $y = -x^2$

A)



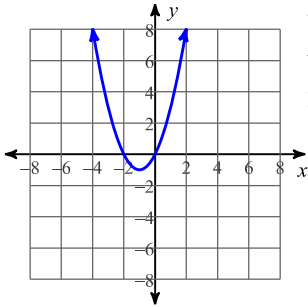
Vertex:  $(0, 0)$   
 Axis of Sym.:  $x = 0$   
 Opens: Down  
 Max value = 0

B)



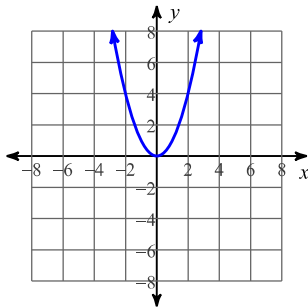
Vertex:  $(-1, 4)$   
 Axis of Sym.:  $x = -1$   
 Opens: Up  
 Min value = 4

C)



Vertex:  $(-1, -1)$   
 Axis of Sym.:  $x = -1$   
 Opens: Up  
 Min value = -1

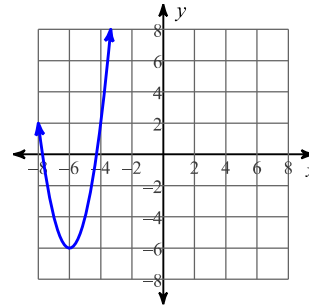
D)



Vertex:  $(0, 0)$   
 Axis of Sym.:  $x = 0$   
 Opens: Up  
 Min value = 0

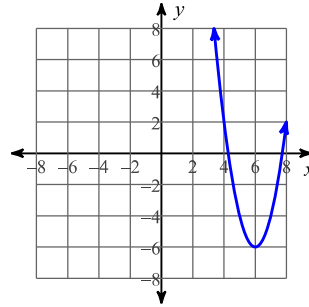
12)  $y = 2x^2 - 24x + 66$

A)



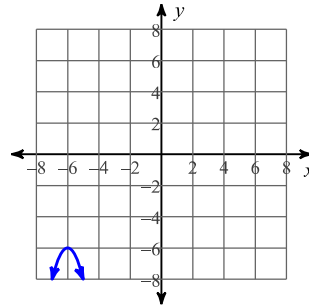
Vertex:  $(-6, -6)$   
 Axis of Sym.:  $x = -6$   
 Opens: Up  
 Min value = -6

B)



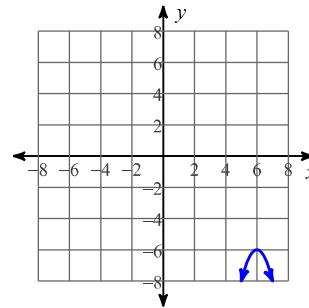
Vertex:  $(6, -6)$   
 Axis of Sym.:  $x = 6$   
 Opens: Up  
 Min value = -6

C)



Vertex:  $(-6, -6)$   
 Axis of Sym.:  $x = -6$   
 Opens: Down  
 Max value = -6

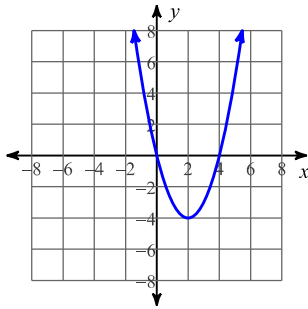
D)



Vertex:  $(6, -6)$   
 Axis of Sym.:  $x = 6$   
 Opens: Down  
 Max value = -6

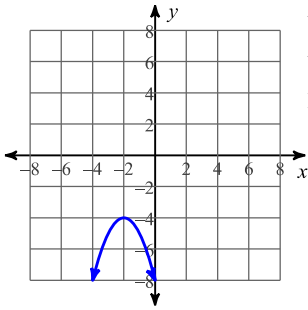
13)  $y = -x^2 - 4x - 8$

A)



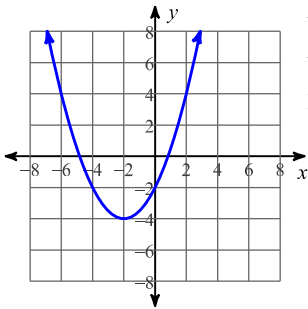
Vertex:  $(2, -4)$   
 Axis of Sym.:  $x = 2$   
 Opens: Up  
 Min value =  $-4$

B)



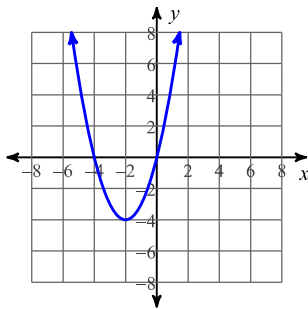
Vertex:  $(-2, -4)$   
 Axis of Sym.:  $x = -2$   
 Opens: Down  
 Max value =  $-4$

C)



Vertex:  $(-2, -4)$   
 Axis of Sym.:  $x = -2$   
 Opens: Up  
 Min value =  $-4$

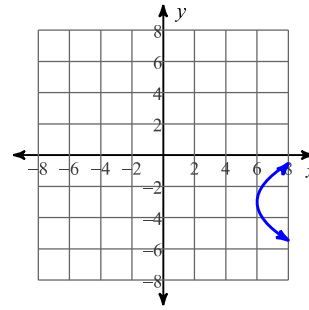
D)



Vertex:  $(-2, -4)$   
 Axis of Sym.:  $x = -2$   
 Opens: Up  
 Min value =  $-4$

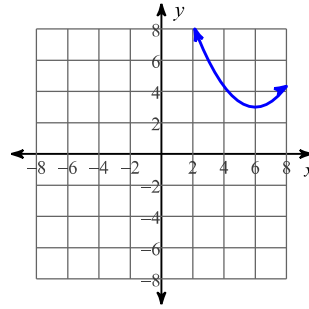
14)  $y = -\frac{1}{3}x^2 + 4x - 9$

A)



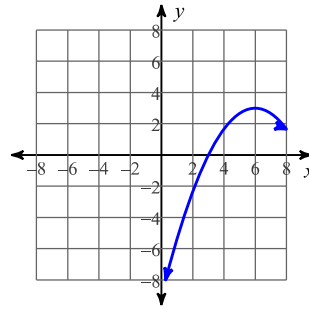
Vertex:  $(6, -3)$   
 Axis of Sym.:  $y = -3$   
 Opens: Right  
 Min value =  $6$

B)



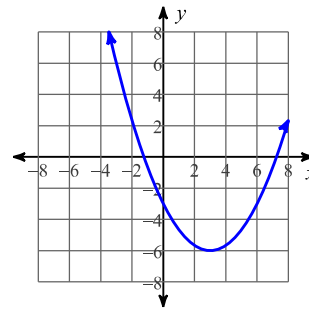
Vertex:  $(6, 3)$   
 Axis of Sym.:  $x = 6$   
 Opens: Up  
 Min value =  $3$

C)



Vertex:  $(6, 3)$   
 Axis of Sym.:  $x = 6$   
 Opens: Down  
 Max value =  $3$

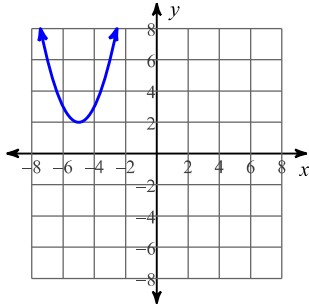
D)



Vertex:  $(3, -6)$   
 Axis of Sym.:  $x = 3$   
 Opens: Up  
 Min value =  $-6$

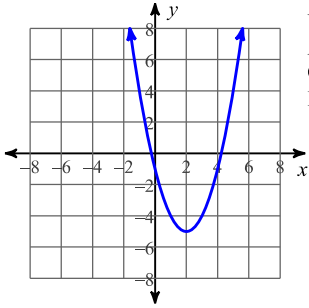
15)  $y = -x^2 - 10x - 27$

A)



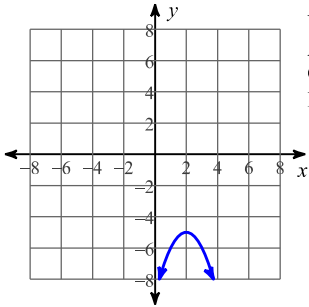
Vertex:  $(-5, 2)$   
 Axis of Sym.:  $x = -5$   
 Opens: Up  
 Min value = 2

B)



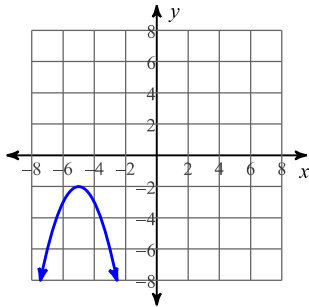
Vertex:  $(2, -5)$   
 Axis of Sym.:  $x = 2$   
 Opens: Up  
 Min value = -5

C)



Vertex:  $(2, -5)$   
 Axis of Sym.:  $x = 2$   
 Opens: Down  
 Max value = -5

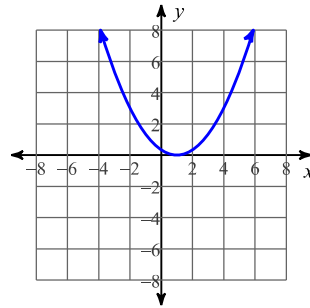
D)



Vertex:  $(-5, -2)$   
 Axis of Sym.:  $x = -5$   
 Opens: Down  
 Max value = -2

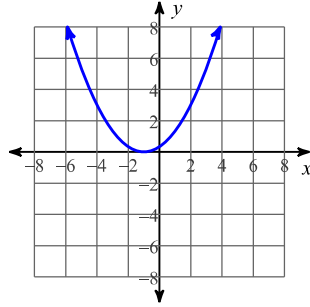
16)  $y = -\frac{1}{3}x^2 + 1$

A)



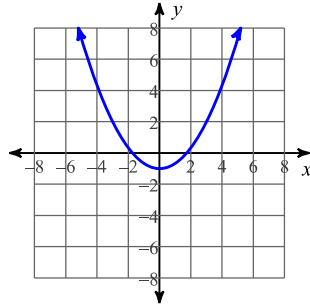
Vertex:  $(1, 0)$   
 Axis of Sym.:  $x = 1$   
 Opens: Up  
 Min value = 0

B)



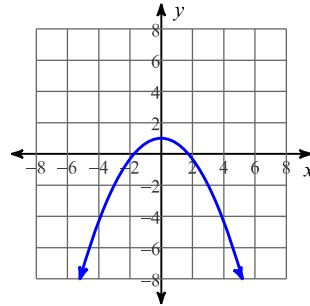
Vertex:  $(-1, 0)$   
 Axis of Sym.:  $x = -1$   
 Opens: Up  
 Min value = 0

C)



Vertex:  $(0, -1)$   
 Axis of Sym.:  $x = 0$   
 Opens: Up  
 Min value = -1

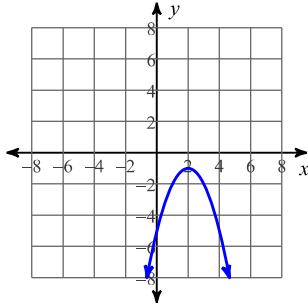
D)



Vertex:  $(0, 1)$   
 Axis of Sym.:  $x = 0$   
 Opens: Down  
 Max value = 1

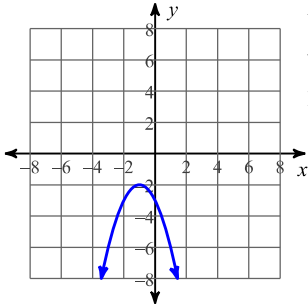
$$17) y = (x + 2)^2 + 1$$

A)



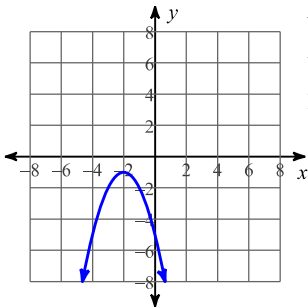
Vertex:  $(2, -1)$   
 Axis of Sym.:  $x = 2$   
 Opens: Down  
 Max value =  $-1$

B)



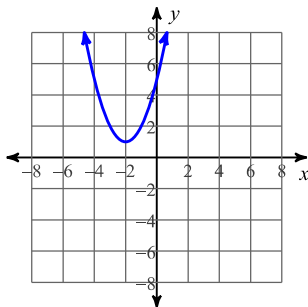
Vertex:  $(-1, -2)$   
 Axis of Sym.:  $x = -1$   
 Opens: Down  
 Max value =  $-2$

C)



Vertex:  $(-2, -1)$   
 Axis of Sym.:  $x = -2$   
 Opens: Down  
 Max value =  $-1$

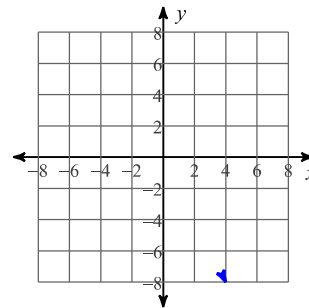
D)



Vertex:  $(-2, 1)$   
 Axis of Sym.:  $x = -2$   
 Opens: Up  
 Min value =  $1$

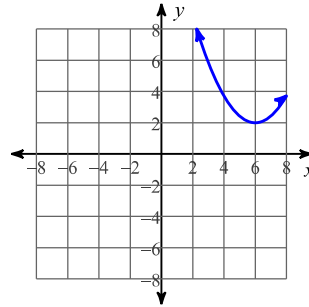
$$18) y = \frac{3}{7}(x - 6)^2 + 2$$

A)



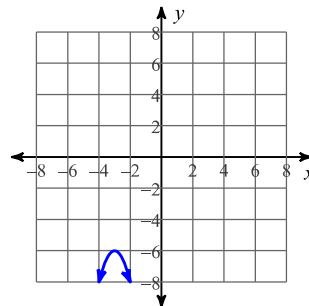
Vertex:  $(4, -8)$   
 Axis of Sym.:  $x = 4$   
 Opens: Down  
 Max value =  $-8$

B)



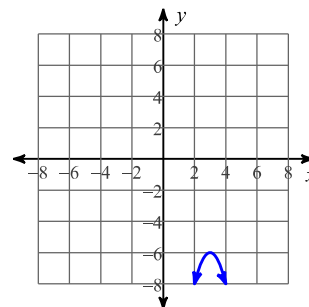
Vertex:  $(6, 2)$   
 Axis of Sym.:  $x = 6$   
 Opens: Up  
 Min value =  $2$

C)



Vertex:  $(-3, -6)$   
 Axis of Sym.:  $x = -3$   
 Opens: Down  
 Max value =  $-6$

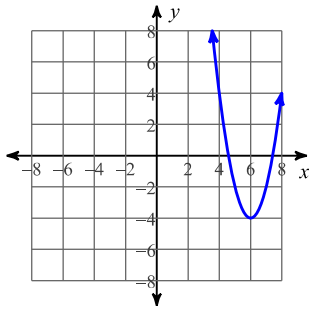
D)



Vertex:  $(3, -6)$   
 Axis of Sym.:  $x = 3$   
 Opens: Down  
 Max value =  $-6$

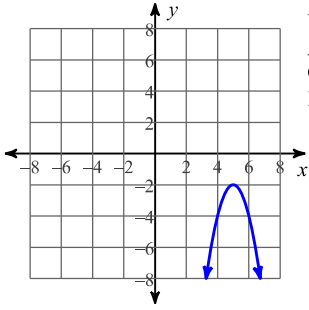
19)  $y = 2(x - 6)^2 - 4$

A)



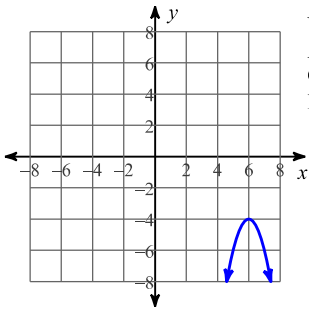
Vertex:  $(6, -4)$   
 Axis of Sym.:  $x = 6$   
 Opens: Up  
 Min value =  $-4$

B)



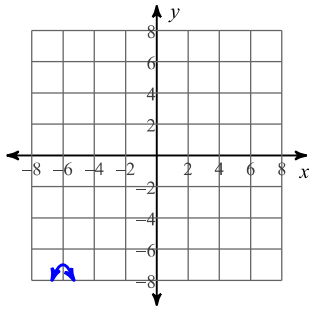
Vertex:  $(5, -2)$   
 Axis of Sym.:  $x = 5$   
 Opens: Down  
 Max value =  $-2$

C)



Vertex:  $(6, -4)$   
 Axis of Sym.:  $x = 6$   
 Opens: Down  
 Max value =  $-4$

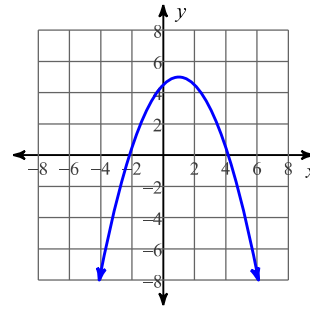
D)



Vertex:  $(-6, -7)$   
 Axis of Sym.:  $x = -6$   
 Opens: Down  
 Max value =  $-7$

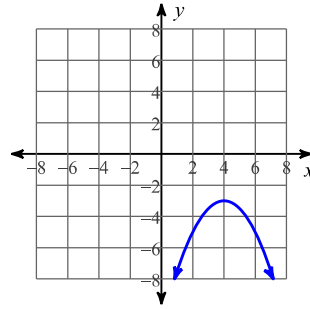
20)  $y = \frac{1}{2}(x - 1)^2 - 5$

A)



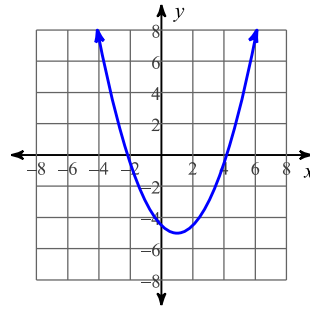
Vertex:  $(1, 5)$   
 Axis of Sym.:  $x = 1$   
 Opens: Down  
 Max value =  $5$

B)



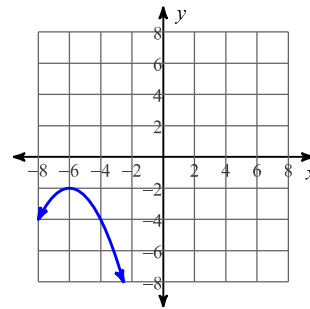
Vertex:  $(4, -3)$   
 Axis of Sym.:  $x = 4$   
 Opens: Down  
 Max value =  $-3$

C)



Vertex:  $(1, -5)$   
 Axis of Sym.:  $x = 1$   
 Opens: Up  
 Min value =  $-5$

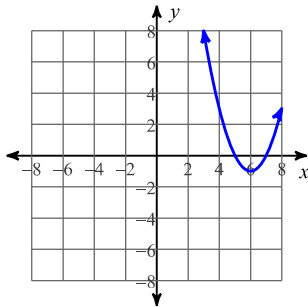
D)



Vertex:  $(-6, -2)$   
 Axis of Sym.:  $x = -6$   
 Opens: Down  
 Max value =  $-2$

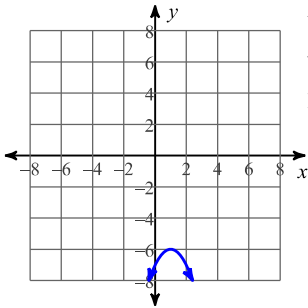
21)  $y = (x - 6)^2 - 1$

A)



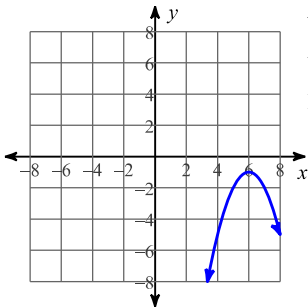
Vertex:  $(6, -1)$   
 Axis of Sym.:  $x = 6$   
 Opens: Up  
 Min value =  $-1$

B)



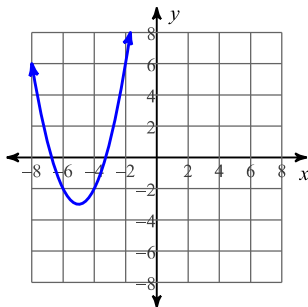
Vertex:  $(1, -6)$   
 Axis of Sym.:  $x = 1$   
 Opens: Down  
 Max value =  $-6$

C)



Vertex:  $(6, -1)$   
 Axis of Sym.:  $x = 6$   
 Opens: Down  
 Max value =  $-1$

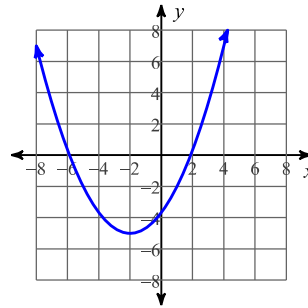
D)



Vertex:  $(-5, -3)$   
 Axis of Sym.:  $x = -5$   
 Opens: Up  
 Min value =  $-3$

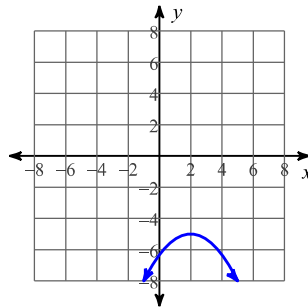
22)  $y = -\frac{1}{3}(x + 2)^2 - 5$

A)



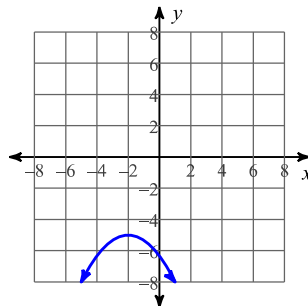
Vertex:  $(-2, -5)$   
 Axis of Sym.:  $x = -2$   
 Opens: Up  
 Min value =  $-5$

B)



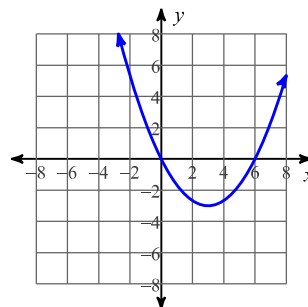
Vertex:  $(2, -5)$   
 Axis of Sym.:  $x = 2$   
 Opens: Down  
 Max value =  $-5$

C)



Vertex:  $(-2, -5)$   
 Axis of Sym.:  $x = -2$   
 Opens: Down  
 Max value =  $-5$

D)



Vertex:  $(3, -3)$   
 Axis of Sym.:  $x = 3$   
 Opens: Up  
 Min value =  $-3$

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

23)  $y = -3(x + 9)^2 - 5$

A)  $y = x^2 - 54x + 252$

B)  $y = -3x^2 - 54x - 248$

C)  $y = -3x^2 - 54x - 238$

D)  $y = x^2 + 54x + 244$

24)  $y = -(x + 6)^2 - 9$

A)  $y = -x^2 - 12x - 45$

B)  $y = x^2 - 12x + 27$

C)  $y = x^2 + 12x + 45$

D)  $y = -x^2 - 12x + 41$

$$25) y = -3(x + 10)^2 + 1$$

- A)  $y = 6x^2 - 60x - 299$
- B)  $y = -3x^2 - 60x - 299$
- C)  $x = -3y^2 - 60y - 301$
- D)  $x = -3y^2 + 6y - 13$

$$26) y = -6(x - 9)^2 + 6$$

- A)  $y = 2x^2 + 108x - 480$
- B)  $x = -6y^2 + 72y - 207$
- C)  $y = -6x^2 + 108x - 480$
- D)  $y = 6x^2 + 108x - 480$

$$27) y = (x - 5)^2 + 8$$

- A)  $y = -x^2 - 16x - 69$
- B)  $y = -x^2 + 10x - 17$
- C)  $y = 2x^2 + 20x + 42$
- D)  $y = x^2 - 10x + 33$