

VERTEX FORM OF A QUADRATIC

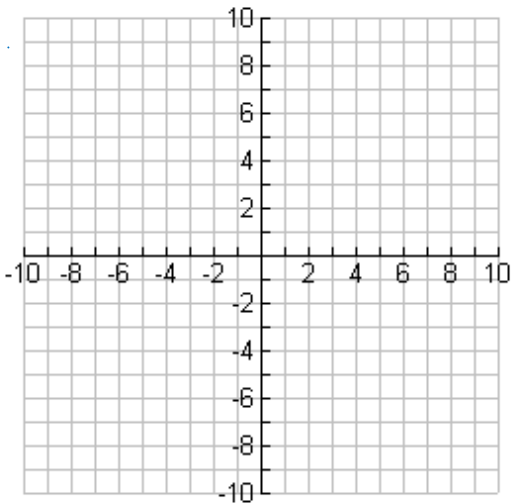
Function	Vertex?	Max or Min?
1) $y - 2 = -\frac{2}{3}(x - 5)^2$		
2) $y - 4 = 3(x + 1)^2$	$(-1, 4)$	min
3) $y = -\frac{3}{4}(x - 6)^2$	$(6, 0)$	max
4) $y = -9(x + 4)^2 - 6$		

VERTEX FORM
 $y - k = a(x - h)^2$
 (h, k) is the vertex

GRAPHING IN VERTEX FORM:

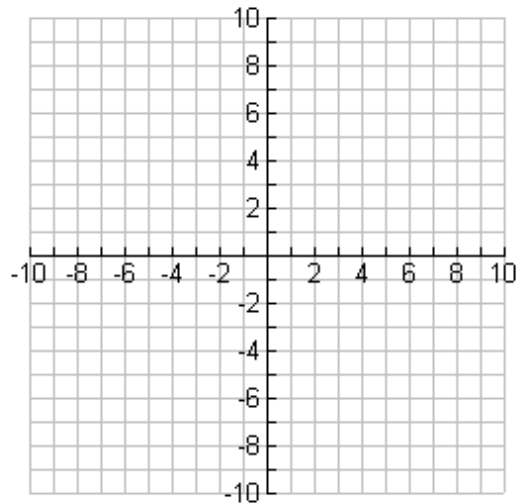
Graph the following parabolas. State the vertex and axis of symmetry.

1) $y + 7 = 3(x + 1)^2$



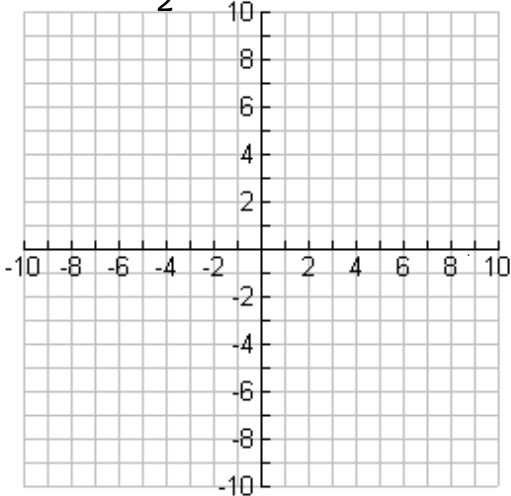
vertex: _____ y int: _____
 axis of symmetry: _____ x int: _____

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



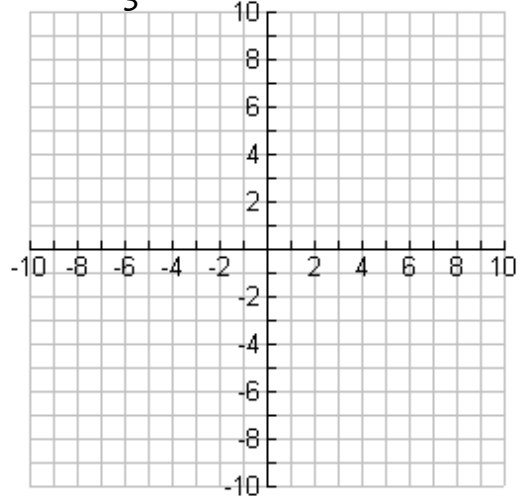
vertex: _____ y int: _____
 axis of symmetry: _____ x int: _____

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



vertex: _____ y int: _____
 axis of symmetry: _____ x int: _____

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



vertex: _____ y int: _____
 axis of symmetry: _____ x int: _____

FINDING THE EQUATION OF A PARABOLA GIVEN THE VERTEX AND A POINT

Write a quadratic function in vertex form whose graph has the given vertex and passes through the given point.

1.) Vertex: (2, -1)
Point: (4, 3)

2.) Vertex: (-2, 9)
Point: (3, 5)

3.) Vertex: (4, 7)
Point: (10, -1)

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

$$-1 - 7 = a(10 - 4)^2$$

$$-8 = a(6)^2$$

$$-8 = 36a$$

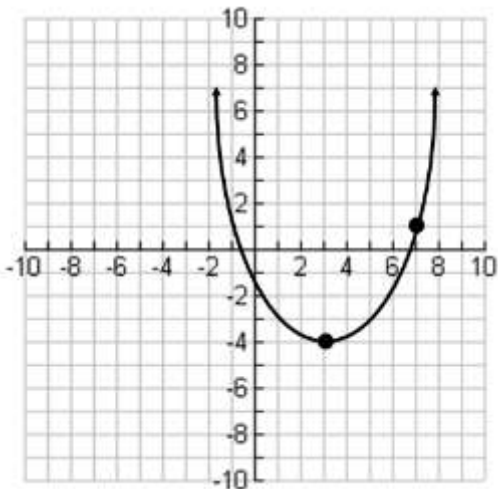
$$a = \frac{-8}{36} = \frac{-2}{9}$$

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

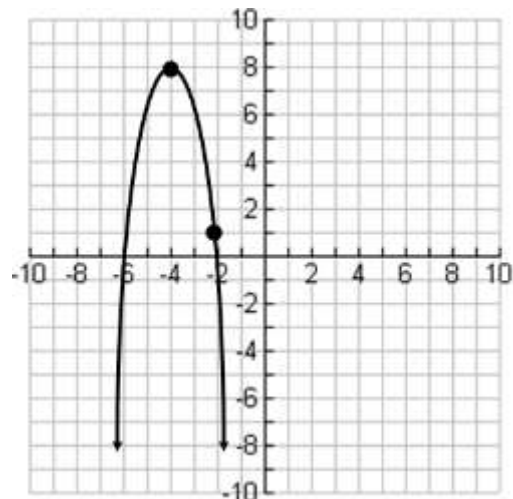
FINDING THE EQUATION OF A PARABOLA FROM A GRAPH

Write a quadratic function in vertex form given the following information.

1) _____



2) $y - 8 = -\frac{7}{4}(x + 4)^2$



vertex: (4, 8) pt: (-2, 1)

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

$$1 - 8 = a(-2 + 4)^2$$

$$-7 = a(2)^2$$

$$-7 = 4a$$

$$a = \frac{-7}{4}$$

$$y - 8 = \frac{-7}{4}(x + 4)^2$$