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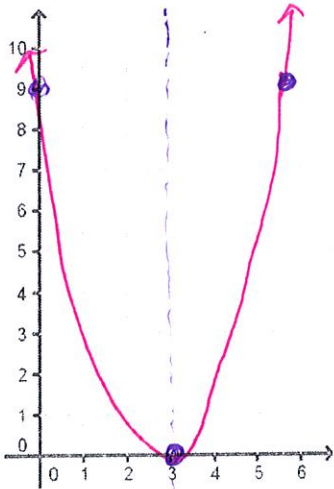
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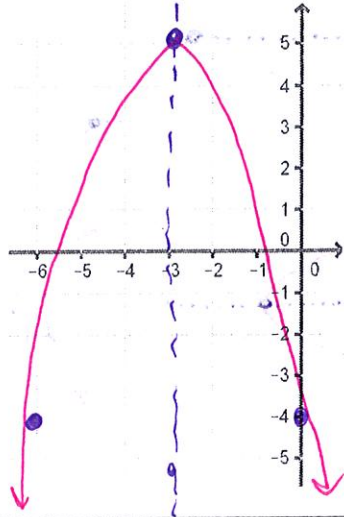
### Practice Worksheet: Graphing Quadratic Functions in **Vertex Form**

For #1-6, label the axis of symmetry, vertex, y-intercept, and at least three more points on the graph.

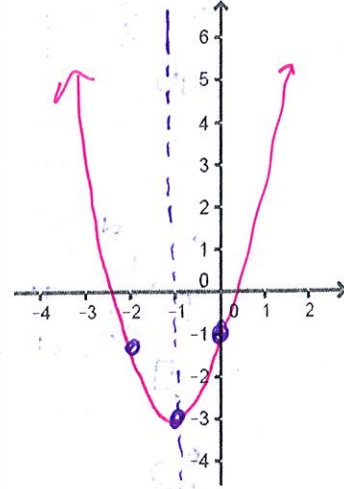
1]  $y = (x - 3)^2 + 0$   
 Axis of Symmetry is  $x = 3$   
 Vertex:  $(3, 0)$   
 Opens up or down?  
 Slope to point one unit from the vertex is X  
 y-intercept:  $(0, 9)$



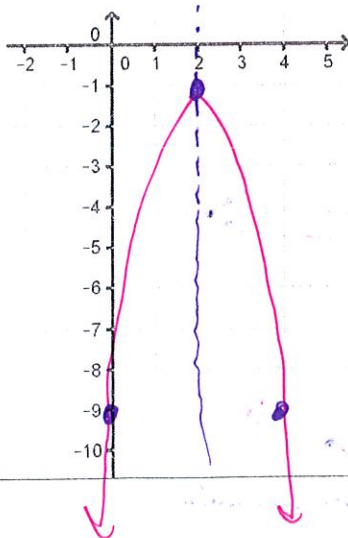
2]  $y = -(x + 3)^2 + 5$   
 Axis of Symmetry is  $x = -3$   
 Vertex:  $(-3, 5)$   
 Opens up or down?  
 Slope to point one unit from the vertex is X  
 y-intercept:  $(0, -4)$



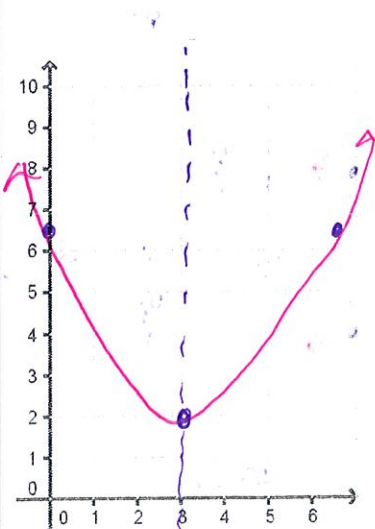
3]  $y = 2(x + 1)^2 - 3$   
 Axis of Symmetry is  $x = -1$   
 Vertex:  $(-1, -3)$   
 Opens up or down?  
 Slope to point one unit from the vertex is X  
 y-intercept:  $(0, -1)$



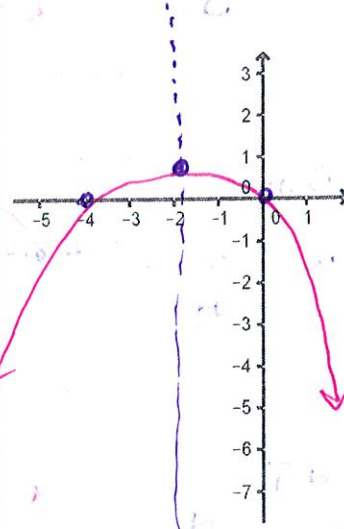
4]  $y = -2(x - 2)^2 - 1$   
 Axis of Symmetry is  $x = 2$   
 Vertex:  $(2, -1)$   
 Opens up or down?  
 Slope to point one unit from the vertex is X  
 y-intercept:  $(0, -9)$



5]  $y = \frac{1}{2}(x - 3)^2 + 2$   
 Axis of Symmetry is  $x = 3$   
 Vertex:  $(3, 2)$   
 Opens up or down?  
 Slope to point one unit from the vertex is X  
 y-intercept:  $(0, 6.5)$



6]  $y = -\frac{1}{4}(x + 2)^2 + 1$   
 Axis of Symmetry is  $x = -2$   
 Vertex:  $(-2, 1)$   
 Opens up or down?  
 Slope to point one unit from the vertex is X  
 y-intercept:  $(0, 0)$



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Practice Worksheet: Graphing Quadratic Functions in Intercept Form

For #1-6, label the x-intercepts, axis of symmetry, vertex, y-int., and at least one more point on the graph.

<p>1] <math>y = \frac{1}{2}(x+4)(x-2)</math></p> <p>x-intercepts: <math>(-4, 0)</math> <math>(2, 0)</math></p> <p>Axis of Symmetry is <math>x = -1</math></p> <p>Vertex: <math>(-1, -9/2)</math></p> <p>y-intercept: <math>(0, -4)</math></p>	<p>2] <math>y = -\frac{1}{2}x(x-8)</math></p> <p>x-intercepts: <math>(8, 0)</math> <math>(0, 0)</math></p> <p>Axis of Symmetry is <math>x = 4</math></p> <p>Vertex: <math>(4, 8)</math></p> <p>y-intercept: <math>(0, 0)</math></p>	<p>3] <math>y = (x+2)(x-2)</math></p> <p>x-intercepts: <math>(-2, 0)</math> <math>(2, 0)</math></p> <p>Axis of Symmetry is <math>x = 0</math></p> <p>Vertex: <math>(0, -4)</math></p> <p>y-intercept: <math>(0, -4)</math></p>	<p>4] <math>y = -\frac{1}{3}(x+1)(x-5)</math></p> <p>x-intercepts: <math>(-1, 0)</math> <math>(5, 0)</math></p> <p>Axis of Symmetry is <math>x = 2</math></p> <p>Vertex: <math>(2, 3)</math></p> <p>y-intercept: <math>(0, 5/3)</math></p>	<p>5] <math>y = 4(x+2)(x+1)</math></p> <p>x-intercepts: <math>(-2, 0)</math> <math>(-1, 0)</math></p> <p>Axis of Symmetry is <math>x = -1.5</math></p> <p>Vertex: <math>(-1.5, -1)</math></p> <p>y-intercept: <math>(0, 8)</math></p>	<p>6] <math>y = -(x-3)(x-3)</math></p> <p>x-intercepts: <math>(3, 0)</math> <math>(3, 0)</math></p> <p>Axis of Symmetry is <math>x = 3</math></p> <p>Vertex: <math>(3, 0)</math></p> <p>y-intercept: <math>(0, -9)</math></p>
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Practice Worksheet: Graphing Quadratic Functions in Standard Form

1] For any quadratic of the form  $y = ax^2 + c$ , the axis of symmetry is always the line  $x = 0$

2] If the axis of symmetry of a quadratic is  $x = 2$  and  $(-1, 3)$  is on the graph, then the point  $(5, 3)$  must also be on the graph.

3] For any quadratic of the form  $y = ax^2 + c$ , the y-intercept is always the same point as the vertex

4] The graph of  $y = 2x^2 + 4x + 3$  passes through the point  $(1, 9)$  and  $(-1, 1)$ .

For #5-12, label the axis of symmetry, vertex, y-intercept, and at least three more points on the graph.

<p>5] <math>y = x^2 - 4x + 8</math></p> <p>a = 1, b = -4, c = 8</p> <p>Opens up or down? <b>up</b></p> <p>Is vertex a max or min? <b>min</b></p> <p>y-intercept: <math>(0, 8)</math></p> <p>Axis of Symmetry is <math>x = 2</math></p> <p>Vertex: <math>(2, 4)</math></p>	<p>6] <math>y = 2x^2 + 8x</math></p> <p>a = 2, b = 8, c = 0</p> <p>Opens up or down? <b>up</b></p> <p>Is vertex a max or min? <b>min</b></p> <p>y-intercept: <math>(0, 0)</math></p> <p>Axis of Symmetry is <math>x = -2</math></p> <p>Vertex: <math>(-2, -8)</math></p>	<p>7] <math>y = -3x^2 - 12x + 1</math></p> <p>a = -3, b = -12, c = 1</p> <p>Opens up or down? <b>down</b></p> <p>Is vertex a max or min? <b>max</b></p> <p>y-intercept: <math>(0, 1)</math></p> <p>Axis of Symmetry is <math>x = -2</math></p> <p>Vertex: <math>(-2, 13)</math></p>	<p>8] <math>y = -\frac{3}{2}x^2 + 3</math></p> <p>a = -3/2, b = 0, c = 3</p> <p>Opens up or down? <b>down</b></p> <p>Is vertex a max or min? <b>max</b></p> <p>y-intercept: <math>(0, 3)</math></p> <p>Axis of Symmetry is <math>x = 0</math></p> <p>Vertex: <math>(0, 3)</math></p> <p>Find the coordinates <math>(2, -3)</math> and <math>(-2, -3)</math> to guide the shape of the parabola.</p>	<p>9] <math>y = 2x^2 - 1</math></p> <p>a = 2, b = 0, c = -1</p> <p>Opens up or down? <b>up</b></p> <p>Is vertex a max or min? <b>min</b></p> <p>y-intercept: <math>(0, -1)</math></p> <p>Axis of Symmetry is <math>x = 0</math></p> <p>Vertex: <math>(0, -1)</math></p> <p>Find the coordinates <math>(2, 7)</math> and <math>(-2, 7)</math> to guide the shape of the parabola.</p>
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