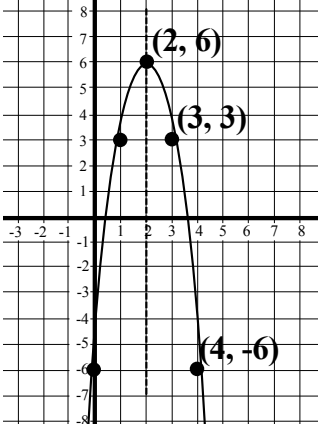
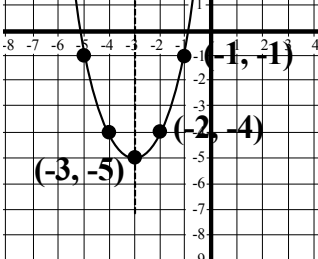
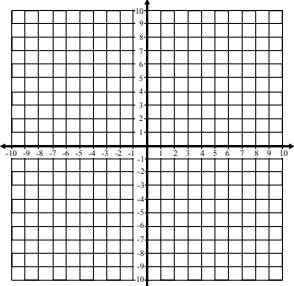
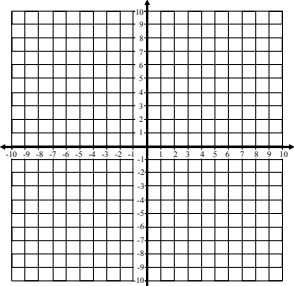
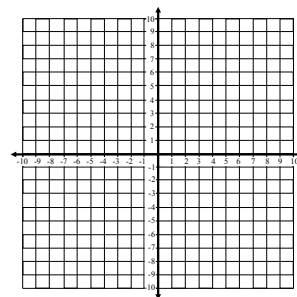


Quadratics Review

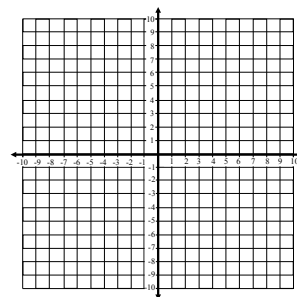
For each quadratic, determine the vertex, the axis of symmetry, the maximum or minimum, the y-intercept and two random points you can use to graph it. Then, graph the quadratic.

<p>Vertex Axis of Symm. is <math>x</math> of vertex Max <math>(-a)</math> or Min <math>(+a)</math> is <math>y</math> of vertex</p>	<p>Two Random Points Choose the <math>x</math>-value closest to the vertex <math>x</math> and the next <math>x</math> after that! Plug in &amp; solve!</p>	<p>Y-intercept Plug in <math>x = 0</math> &amp; solve for <math>y</math>.</p>	<p>Graph Plot the vertex and the two random points. Reflect the two points across the axis!</p>
<p><b>EXAMPLE</b> <math>f(x) = -3(x - 2)^2 + 6</math></p> <p>Vertex form: it's <math>(h, k)</math> <math>h = +2</math> &amp; <math>k = +6</math> <span style="border: 1px solid black; padding: 2px;"><math>(2, 6)</math></span></p> <p>Axi of Symm.: <span style="border: 1px solid black; padding: 2px;"><math>x = 2</math></span> Max or Min: <span style="border: 1px solid black; padding: 2px;"><math>y = 6</math></span></p>	<p><math>x</math> of the vertex is 2, so I'll pick the next two numbers: 3 &amp; 4 <math>x = 3</math> <math>f(3) = -3(3 - 2)^2 + 6</math> <math>f(3) = -3(1)^2 + 6</math> <math>f(3) = -3(1) + 6</math> <math>f(3) = -3 + 6</math> <math>f(3) = 3</math> <span style="border: 1px solid black; padding: 2px;"><math>(3, 3)</math></span></p> <p><math>x = 4</math> <math>f(4) = -3(4 - 2)^2 + 6</math> <math>f(4) = -3(2)^2 + 6</math> <math>f(4) = -3(4) + 6</math> <math>f(4) = -12 + 6</math> <math>f(4) = -6</math> <span style="border: 1px solid black; padding: 2px;"><math>(4, -6)</math></span></p>	<p><math>f(0) = -3(0 - 2)^2 + 6</math> <math>f(0) = -3(-2)^2 + 6</math> <math>f(0) = -3(4) + 6</math> <math>f(0) = -12 + 6</math> <math>f(0) = -6</math> <span style="border: 1px solid black; padding: 2px;"><math>(0, -6)</math></span></p>	
<p><b>EXAMPLE</b> <math>f(x) = x^2 + 6x + 4</math></p> <p>Standard form: use <math>x = -\frac{b}{2a} = -\frac{6}{2(1)}</math> <math>x = -3</math> <math>f(-3) = (-3)^2 + 6(-3) + 4</math> <math>= 9 - 18 + 4 = -5</math> <span style="border: 1px solid black; padding: 2px;"><math>(-3, -5)</math></span></p> <p>Axis: <span style="border: 1px solid black; padding: 2px;"><math>x = -3</math></span> Max or Min: <span style="border: 1px solid black; padding: 2px;"><math>y = -5</math></span></p>	<p><math>x</math> of the vertex is -3, so I'll pick the next two numbers: -2 &amp; -1 <math>x = -2</math> <math>f(-2) = (-2)^2 + 6(-2) + 4</math> <math>f(-2) = 4 - 12 + 4</math> <math>f(-2) = -4</math> <span style="border: 1px solid black; padding: 2px;"><math>(-2, -4)</math></span></p> <p><math>x = -1</math> <math>f(-1) = (-1)^2 + 6(-1) + 4</math> <math>f(-1) = 1 - 6 + 4</math> <math>f(-1) = -1</math> <span style="border: 1px solid black; padding: 2px;"><math>(-1, -1)</math></span></p>	<p><math>f(0) = (0)^2 + 6(0) + 4</math> <math>f(0) = 0 + 0 + 4</math> <math>f(0) = 4</math> <span style="border: 1px solid black; padding: 2px;"><math>(0, 4)</math></span></p>	
<p>1. <math>f(x) = (x - 3)^2 + 2</math></p>			
<p>2. <math>f(x) = -2x^2 + 4x + 5</math></p>			

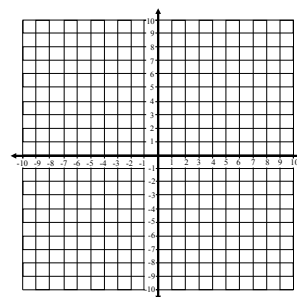
$$3. f(x) = -x^2 + 8x - 7$$



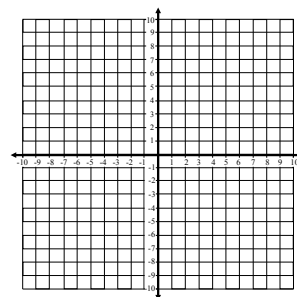
$$4. f(x) = 2(x + 9)^2 - 3$$



$$5. f(x) = -(x + 1)^2$$



$$6. f(x) = (x - 3)^2 + 2$$



$$7. f(x) = 3x^2 - 6x - 4$$

