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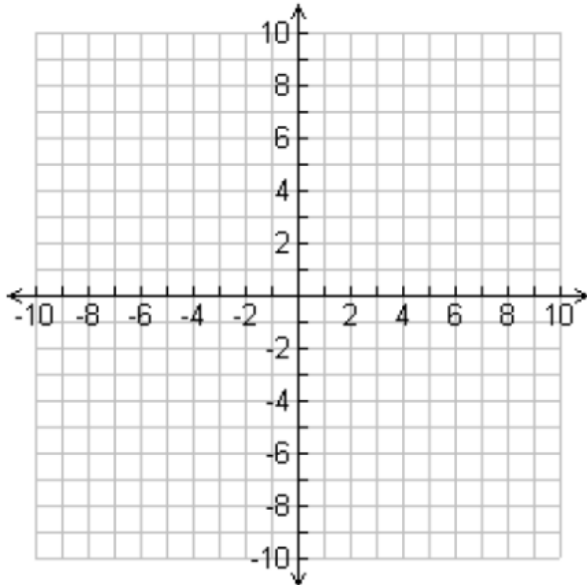
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Math Lab: Graphing Quadratic Equations in Vertex Form

What are the characteristics of the parent graph of a quadratic function?

Complete the table and plot the points to sketch the graph of $y = x^2$.

x	$y = x^2$
-3	
-2	
-1	
0	
1	
2	
3	



The shape of a quadratic function is called a _____.

The highest or lowest point on the curve is the _____. On the parent graph it is located at the _____.

The _____ is the vertical line passing through the vertex.

The domain of $y = x^2$ is _____ and the range is _____.

How do you graph a quadratic function in vertex form?

The transformations we learned for absolute value functions work the same way for quadratic functions.

$$y = a(x - h)^2 + k$$

Reflection	Dilations	Horizontal Translations	Vertical Translations
$a > 0$ opens up	$ a > 1$ narrows the graph	$(x - h)$ shifts right h units	$-k$ shifts down k units
$a < 0$ opens down (reflection over the x-axis)	$ a < 1$ widens the graph	$(x + h)$ shifts left h units	$+k$ shifts up k units

The vertex is at (h,k) . The axis of symmetry is the vertical line $x = h$. To find the y-intercept, substitute 0 for x and solve for y . Use the a -value as the slope from the vertex to the point **one unit to the right** of the vertex.

<p>A] $y = -(x - 1)^2 + 2$</p>	<p>B] $y = \frac{1}{2}(x + 1)^2$</p>	<p>C] $y = 2x^2 - 3$</p>
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