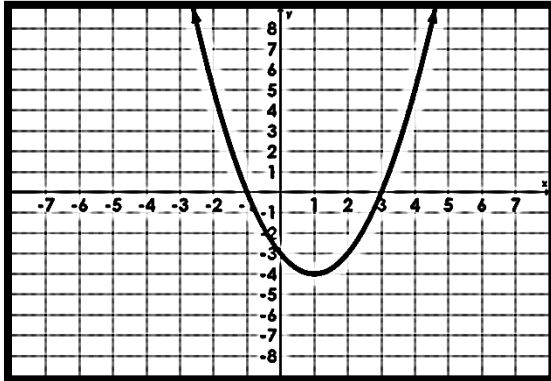


Name _____

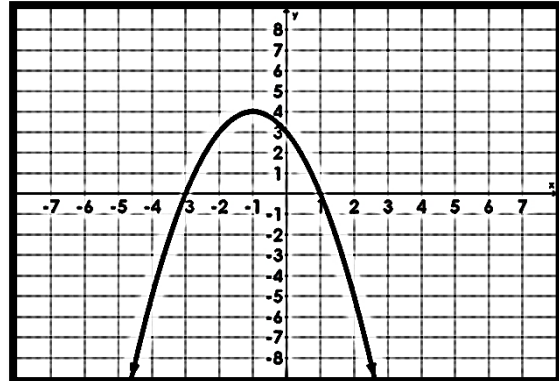
Date _____

Characteristics of Quadratics and Graphing in Vertex Form

Graph 1



Graph 2



Vertex: Highest or lowest point on the graph. It is also the place where the graph changes direction.

Graph 1: _____

Graph 2: _____

Axis of Symmetry: The vertical line that divides the parabola into mirror images and runs through the vertex. When describing the axis of symmetry, the **x-coordinate** of the vertex represents axis of symmetry.

Graph 1: _____

Graph 2: _____

Extrema: Does the graph have a max or min? The vertex's **y-coordinate** is the minimum value of the function if $a > 0$ and the maximum value if $a < 0$.

Graph 1: _____

Graph 2: _____

Domain: All possible values of x .

Graph 1: _____ Graph 2: _____

Range: All possible values for y .

Graph 1: _____ Graph 2: _____

Y-intercept: Where the graph crosses the y -axis, written as $(0, b)$

Graph 1: _____

Graph 2: _____

X-intercepts: Where the graph crosses the x -axis, written as $(a, 0)$

Graph 1: _____

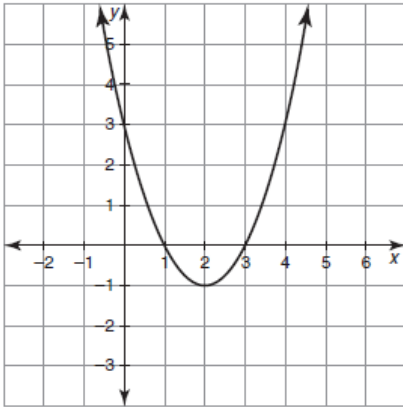
Graph 2: _____

Zeroes: Where the graph crosses the x -axis. Zeroes are written as $x = \underline{\hspace{1cm}}$.

Graph 1: _____

Graph 2: _____

Practice: Describe the characteristics of the following graphs:



Transformations: _____

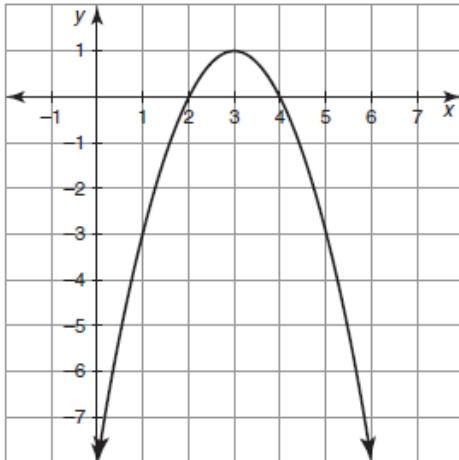
Equation: _____

Vertex: _____ **Axis of Symmetry:** _____

Domain: _____ **Range:** _____

Y-Intercept: _____ **Zeroes:** _____

Extrema: _____ **Max/Min Value:** _____



Transformations: _____

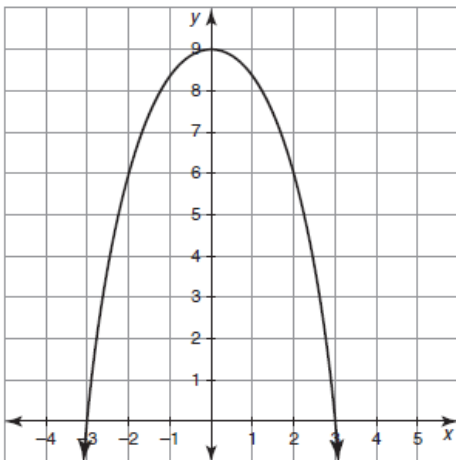
Equation: _____

Vertex: _____ **Axis of Symmetry:** _____

Domain: _____ **Range:** _____

Y-Intercept: _____ **Zeroes:** _____

Extrema: _____ **Max/Min Value:** _____



Transformations: _____

Equation: _____

Vertex: _____ **Axis of Symmetry:** _____

Domain: _____ **Range:** _____

Y-Intercept: _____ **Zeroes:** _____

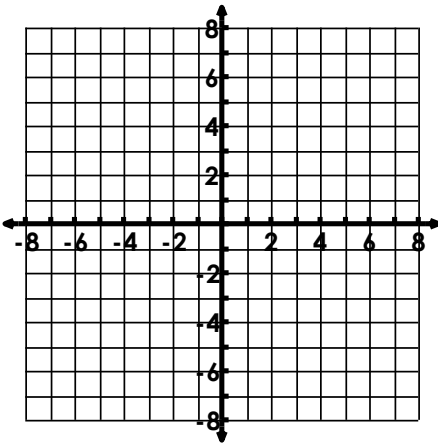
Extrema: _____ **Max/Min Value:** _____

Graphing Quadratics in Vertex Form

Vertex form of a quadratic: $y = a(x - h)^2 + k$.

1. Determine the vertex and plot it.
2. Draw the axis of symmetry.
3. Create an xy-table, put your vertex in the MIDDLE, and label two points on either side
4. Draw a parabola through plotted points.

Graph: $y = -3(x + 1)^2 - 3$



Transformations: _____

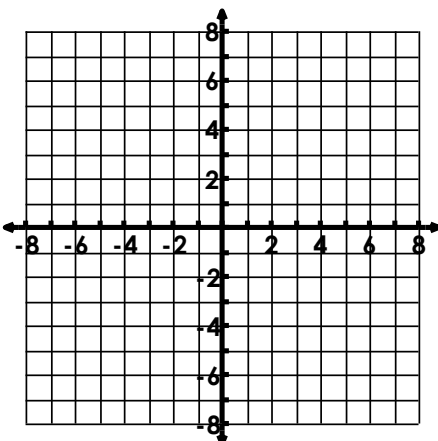
Vertex: _____ **Axis of Symmetry:** _____

Domain: _____ **Range:** _____

Y-Intercept: _____ **Zeros:** _____

Extrema: _____ **Max/Min Value:** _____

Graph: $y = 2(x - 1)^2$



Transformations: _____

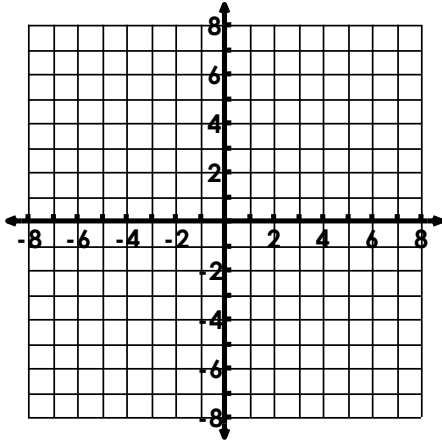
Vertex: _____ **Axis of Symmetry:** _____

Domain: _____ **Range:** _____

Y-Intercept: _____ **Zeros:** _____

Extrema: _____ **Max/Min Value:** _____

Graph: $y = -x^2 + 4$



Transformations: _____

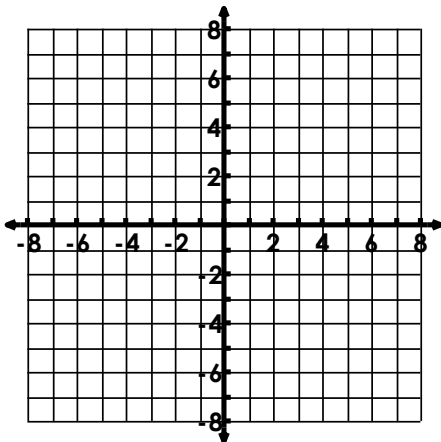
Vertex: _____ **Axis of Symmetry:** _____

Domain: _____ **Range:** _____

Y-Intercept: _____ **Zeroes:** _____

Extrema: _____ **Max/Min Value:** _____

Graph: $y = \frac{1}{2}(x - 2)^2 + 2$



Transformations: _____

Vertex: _____ **Axis of Symmetry:** _____

Domain: _____ **Range:** _____

Y-Intercept: _____ **Zeroes:** _____

Extrema: _____ **Max/Min Value:** _____