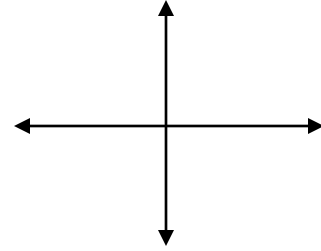


Essential Question: What do the graphs of quadratic functions look like?

Do Now: Using your graphing calculator, go to $y =$ and graph the equation $y = x^2 + x - 3$. Draw a sketch of what your graph looks like.

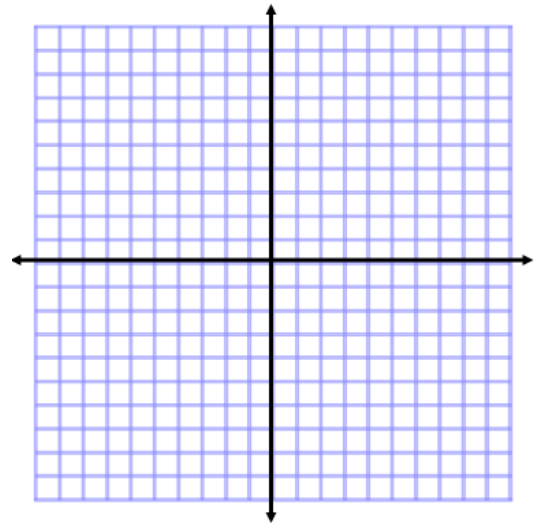


Graphing Quadratic Functions

- The equation must be in **standard form**, $y = ax^2 + bx + c$
- Find the x -coordinate of the **vertex** (turning point) using the formula, $x = \frac{-b}{2a}$
- Create a **table of values** using three x -values smaller than the vertex, and three x -values larger than the vertex.
- **Graph** the points from the table of values and **connect** them with a smooth **curve**.
- **Label** the parabola using the original equation.

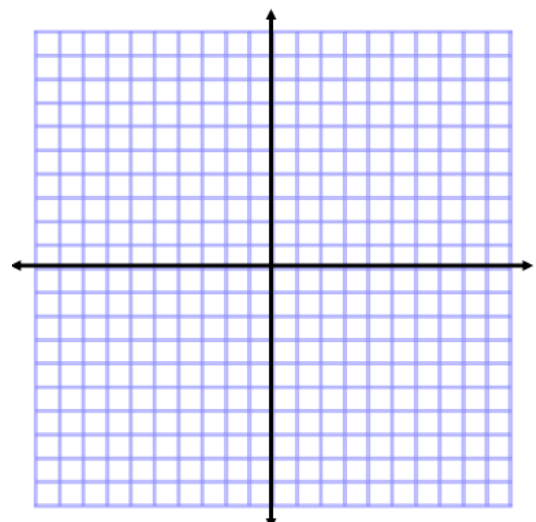
1. Graph $y = x^2 - 2x + 5$

x	y

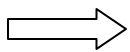


2. Graph $y = -2x^2 + 8x + 1$

x	y



- The parabola opens **up** when the a value is _____ and **down** when the a value is _____.
- If the parabola opens *up*, the vertex is called the _____ (lowest point). If the parabola opens *down*, the vertex is the _____ (highest point).
- The *vertical line* that divides the parabola into two equal halves, through the vertex, is called the _____.



Go back to the first two graphs and label the axis of symmetry and vertex, and state if the vertex is a minimum or maximum.

Algebra RH

HW # _____

For the following quadratic equations:

- 1) Create a table of values.
- 2) Graph the parabola on graph paper. (Graph each parabola separately.)
- 3) Label the vertex and determine if it is a minimum or maximum point.
- 4) Graph and label the axis of symmetry for each graph.

Examples:

1. $y = x^2 - 6x + 8$

2. $y = -x^2 + 4$

3. $y = -x^2 - 4x - 4$

4. $y = -2x^2 + 3$

5. $y = \frac{1}{2}x^2 - 4x + 6$

6. $y = 3x^2 + 6x - 10$