Name: _____   Date: _____

A quadratic relationship is one that has a degree of _____.

The _____ form of a quadratic function is _____.
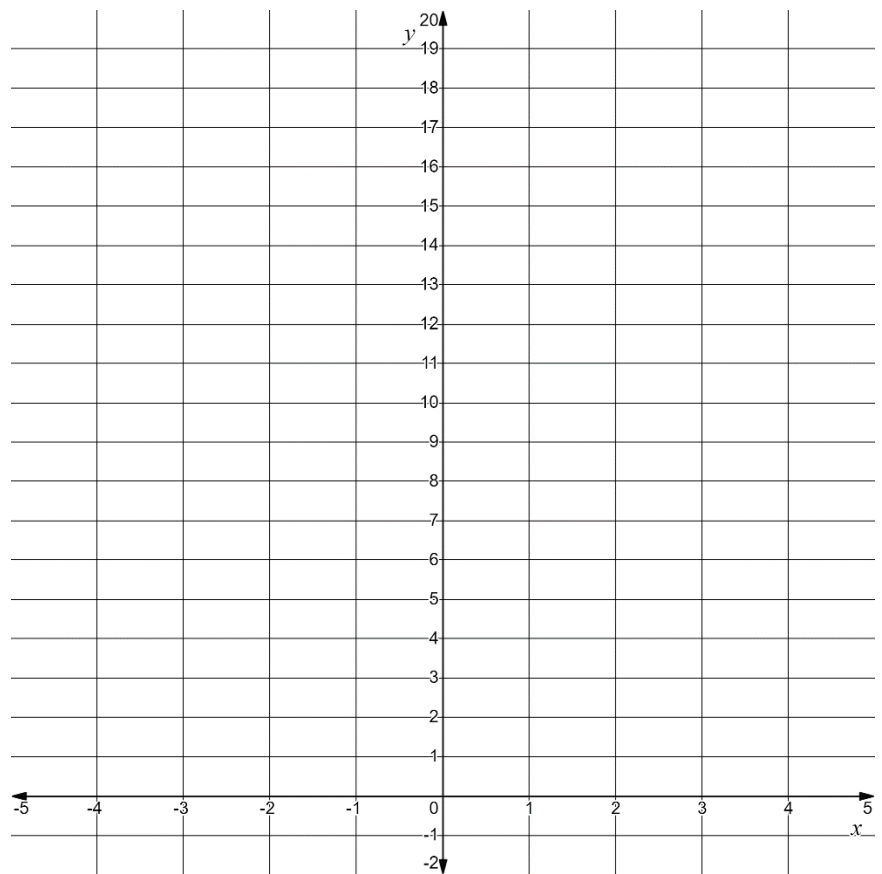
The "basic" quadratic function is $y = x^2$. Complete the table of values and then graph the function.

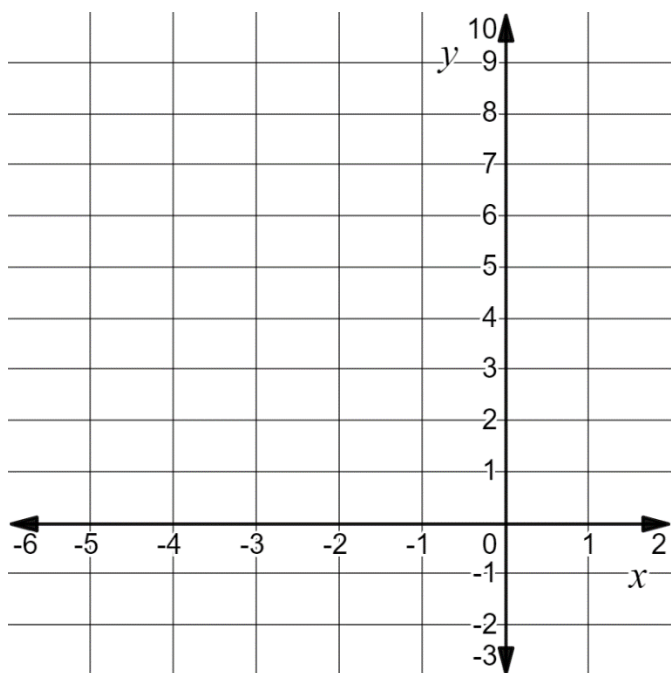| x	-4	-3	-2	-1	0	1	2	3	4
y									

This shape is called a

Graph features:

- Vertex

- x-intercept

- y-intercept

- Axis of symmetry

Example Consider $y = x^2 + 4x + 3$.

- From this form of the equation we know the

- If we factor this equation, we will know the

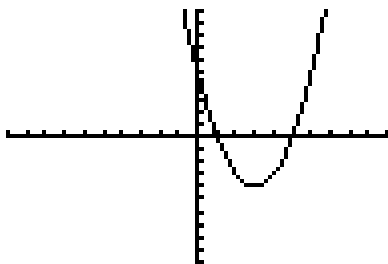- We can find the vertex by

- The axis of symmetry

x	-5	-4	-3	-2	-1	0	1
y							

We are going to use http://www.mathopenref.com/quadraticexplorer.html to explore quadratic functions.
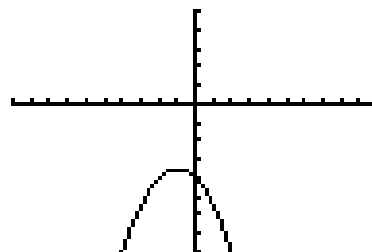
- What happens as a changes?

- What happens if $a = 0$?

- What happens as b changes?

- What happens if $b = 0$?

- What happens as c changes?

- What happens if $c = 0$?

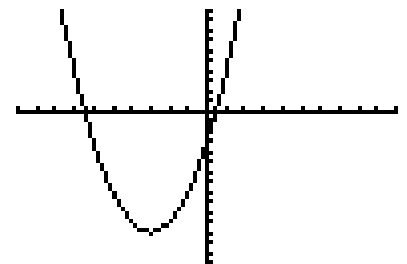**Example** For the graphs below, predict whether a, b, c are positive, negative or zero.

a.

b.

c.

a

b

c