GRAPHING QUADRATICS

The Parent Function: $Y = x^2$

Vertex at (0 , 0)

1 Real Root at (0,0)

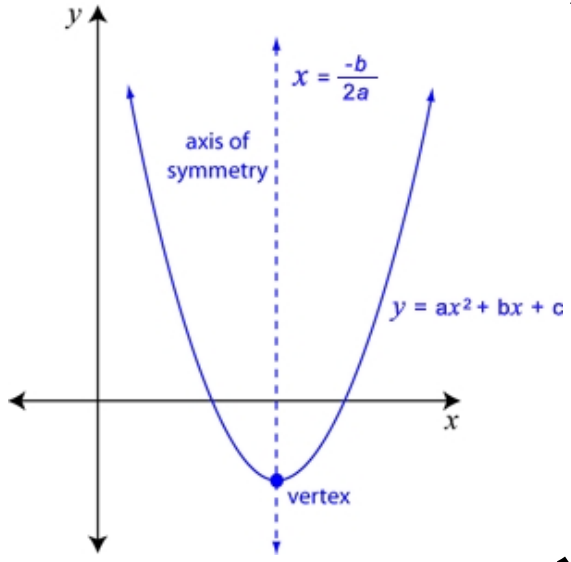
*Transformations compared to parent function

The Steps to Graphing A Quadratic Function:

1) Find the vertex (h , k).
2) Find the y - intercept [Set x = 0]
3) Find the x - intercepts [Set y = 0]
4) Make an x-y table
5) Plot the points and connect the dots!

Domain - All possible x-values

Range - All possible y-values (look at the 'a' and vertex!)



Axis of Symmetry - Reflects the y values from one side across and onto the other. [x coordinate of vertex] $\frac{-b}{2a}$

Factor Form:

$Y = (x - p)(x - q)$

- Set factors to 0 to find the x-intercepts

Standard Form:

$Y = ax^2 + bx + c$

What does this form tell us?

- ❑ a -> UP/DOWN
- ❑ a -> STRETCH
- ❑ C -> Y - intercept

Vertex Form:

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

What does this form tell us?

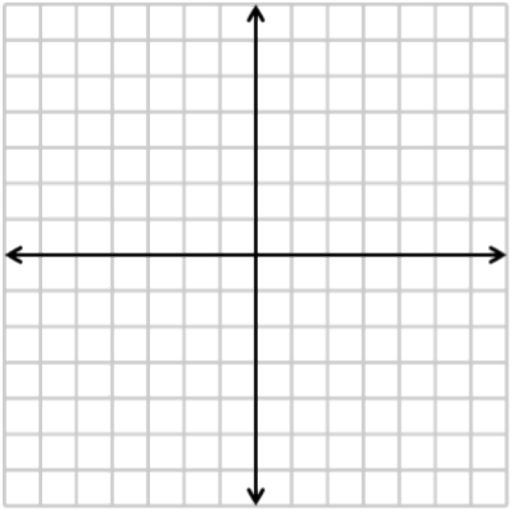
- ❑ a -> UP/DOWN
- ❑ a -> STRETCH
- ❑ Vertex -> (h , k)

*Also helps describe transformations!

Your Turn!

Graph the following quadratic function. Then answer, then following questions below.

$F(x) = x^2 - 4x + 3$



1) What is the y-intercept?

2) What is the vertex?

3) What are the roots?

4) What is the domain / range?

5) Describe the transformations.