

The Parent Function:  $y = x^2$

Vertex at (0, 0)

1 Real Root at (0,0)

- Transformations compared to parent function

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

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?

- $a \rightarrow$  UP/DOWN
- $a \rightarrow$  STRETCH
- $c \rightarrow$  Y-intercept

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!

## GRAPHING QUADRATICS

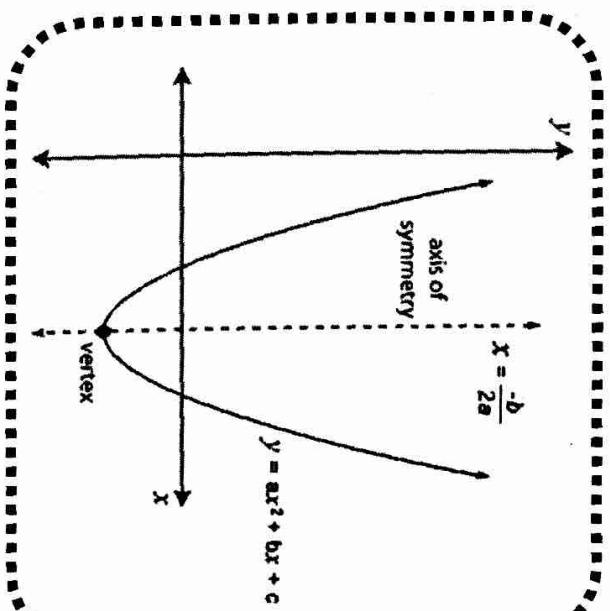
Vertex Form:

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

What does this form tell us?

- $a \rightarrow$  UP/DOWN
- $a \rightarrow$  STRETCH
- Vertex  $\rightarrow (h, k)$

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



\*Also helps describe transformations!