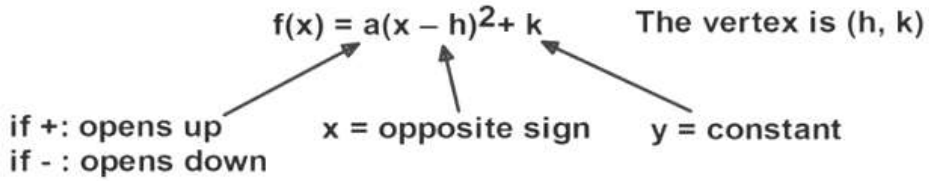
Vertex Form of a Parabola

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

Vertex (h,k)

How would you find the vertex of an equation?

If its in Vertex Form:



Convert to Vertex Form:

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

$a=1 \quad b=2 \quad c=-3$

Step 1: Find Vertex $(-1, -4)$ (h, k)

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

Change It.. Keep It!

$x = \frac{-b}{2a} = \frac{-2}{2(1)} = -1$

$y = (-1)^2 + 2(-1) - 3$

$= 1 - 2 - 3 = -4$

Step 2: $a = 1$

$x \quad h = -1$

$y \quad k = -4$

Step 3: Plug a, h, and k into vertex form.

$f(x) = (x - -1)^2 + -4$

$f(x) = (x+1)^2 - 4$