## **Standard Form** $f(x) = ax^2 + bx + c$ Vertex Formula: plug in x to get yDomain: all real numbers $(-\infty, \infty)$ Range: $y \le y$ -vertex $(-\infty, y\text{-vertex}]$ (use bracket for range)

Increasing

x < (x-vertex)

 $(-\infty, x\text{-vertex})$ 

Maximum value

opens

**DOWN** 

is (y-vertex)

NOTE: Both Standard Form and Vertex Form can open either UP or DOWN.

Leading Coefficient (a)

(positive)

Decreasing

x < (x-vertex)

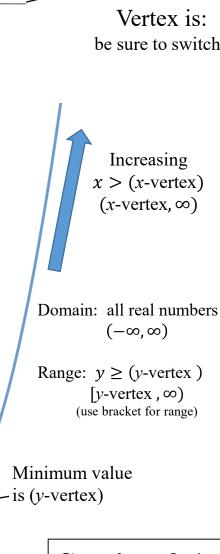
 $(-\infty, x\text{-vertex})$ 

opens

UP

## **Vertex Form** $f(x) = a(x - h)^2 + k$

Vertex is: (h, k)be sure to switch sign for h



## Axis of Symmetry

Decreasing

x > (x-vertex)

 $(x\text{-vertex}, \infty)$ 

Equation is: x = (x-vertex)

## **Section 3.1 Quadratic Functions**