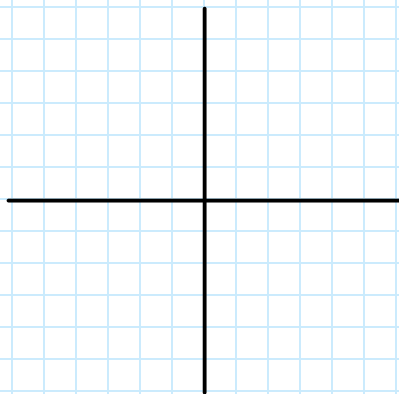


Transformations of Quadratic Graphs

- _____ Functions - The simplest form of a family of functions
 - Ex: Quadratics in *Standard* form $\mathbf{f(x) = ax^2 + bx + c}$, the parent form that preserves the general _____ of the graph is $\mathbf{f(x) =}$ _____
- Use " _____ the _____ " to establish *Vertex* Form
 - Step 1 - Isolate c (by grouping $ax^2 + bx$)
 - Step 2 - Reduce so that a = 1
 - Step 3 - Complete the square trinomial: $+\left(\frac{b}{2}\right)^2$
 - Step 4 - Balance the equation; *Be Careful!*
 - Step 5 - Rewrite quadratic in Vertex Form
- Example 1: $f(x) = x^2 - 4x + 7$ Example 2: $f(x) = -2x^2 + 12x - 19$

Parent Graph: $f(x) = x^2$, known as a "parabola"

x	$f(x)$
-2	
-1	
0	
1	
2	



Graphing Quadratics in Vertex Form

Vertex form: $f(x) =$ _____

- "a" - vertical stretch or compression and direction of parabola
 - If _____, the graph opens up
 - If _____, the graph opens down
 - If _____, the parent graph stretches taller
 - If _____, the parent graph compresses shorter
- (h, k) - the _____ of the parabola

Revisit:

Example 1: $f(x) = x^2 - 4x + 7$

Example 2: $f(x) = -2x^2 + 12x - 19$

• Vertex Form: $f(x) = (x - 2)^2 + 3$

Vertex Form: $f(x) = -2(x - 3)^2 - 1$

