



Today I will...	I'll know I've got it when...	Essential Question...
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**Quadratic Functions**

$$ax^2 + bx + c = 0$$

**Graphs**



**Parabolas**

**Standard Form**

$$y = ax^2 + bx + c$$

$|a| < 1$  parabola wider

$$x = -\frac{b}{2a} \text{ axis of symmetry}$$

$|a| > 1$  parabola narrower

"a" positive = opens up, "a" negative = opens down

**Vertex Form**

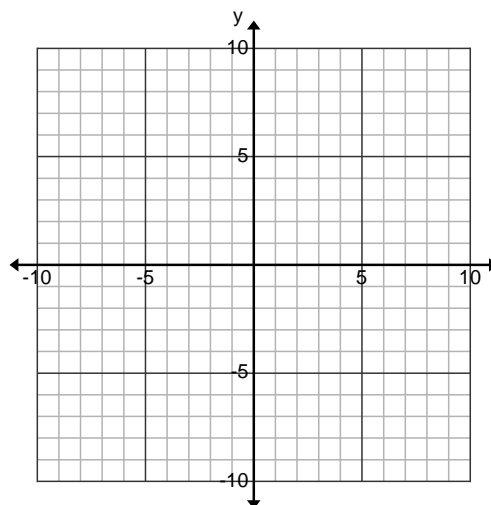
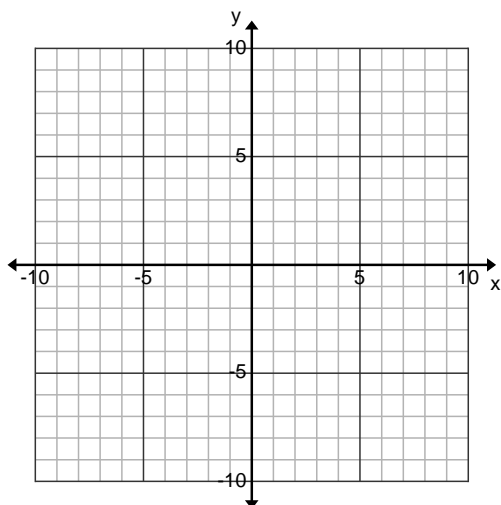
$$y = a(x - h)^2 + k$$

$(h, k)$  vertex  $x = h$  axis of symmetry

**Example 1:** Graph each function. Find the domain and range of each function.

A.  $y = (x - 1)^2 + 2$

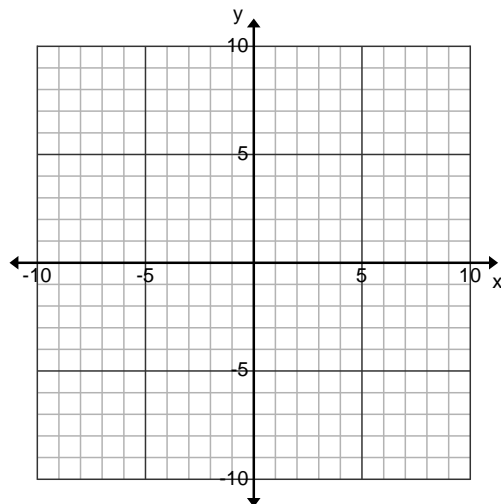
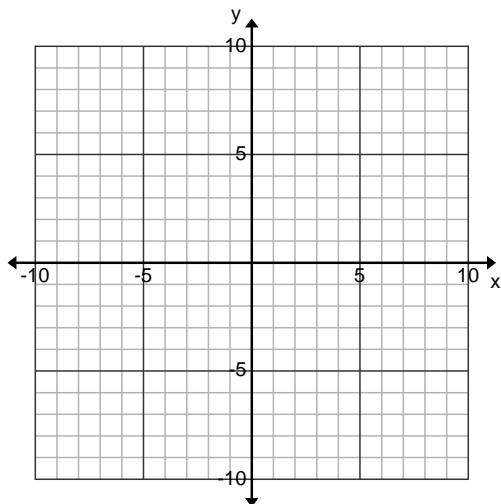
B.  $f(x) = -(x + 2)^2 + 3$



**Example 2:** Graph each function. Find the domain and range of each function.

A.  $y = 2x^2 - 4$

B.  $f(x) = -.5x^2 - 2x + 4$



**Example 3:** Find the vertex and axis of symmetry. State whether the graph opens up or down.

A.  $y = (x - 2)^2 + 8$

B.  $y = -10(x + 1)^2 - 5$

C.  $y = 4x^2 + 16x - 3$