Algebra I
Lesson 9.3 – Graphing Quadratic Functions
Mrs. Snow, Instructor

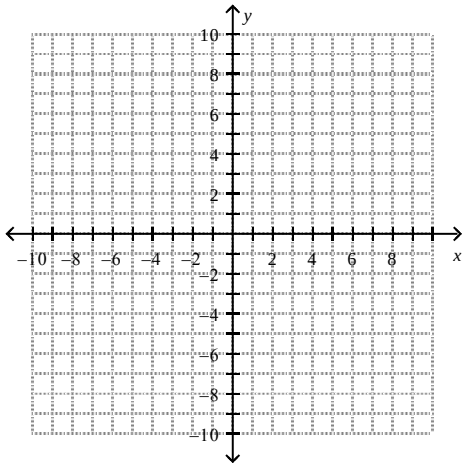
In a linear equation, $y = mx + b$ the constant *b* is the y - intercept. Is it that easy with a quadratic function? Yes! For $y = x^2 + 4x - 5$ we can find the y - intercept by making x=0. We quickly see that the **constant in the equation is the y-intercept.**

Vocabulary:
Y-intercept – for $y = ax^2 + bx + c$ the y-intercept $= (0, c)$

Graphing now becomes a bit easier. We can use the axis of symmetry and vertex formulas along with the y-intercept, and calculate a couple points and graph:

Graph using the y-intercept, axis of symmetry and the vertex. Choose two more points.

$$y = x^2 + 4x - 5$$



x	y

1. Identify c, the y-intercept
2. Using $x = -\frac{b}{2a}$, find the axis of symmetry
3. Now find the vertex: $(-\frac{b}{2a}, f\left(-\frac{b}{2a}\right))$
4. Now select a couple values for x, and solve for y.
5. Plot the points and sketch the graph

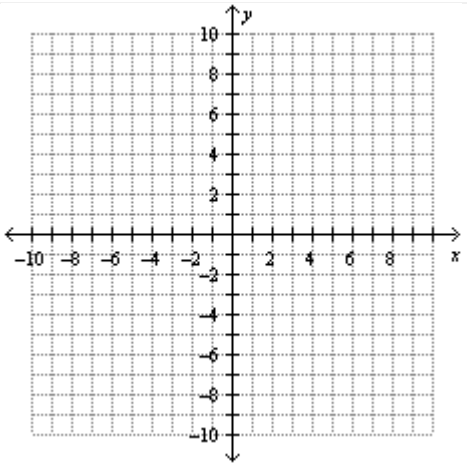
$y + 6x = x^2 + 9$ *Standard form??????*

$x = -\frac{b}{2a} =$

when x=_____,

y-intercept=_____

x	y



As Molly dives in to a swim pool, her height in feet above the water can be modeled by the function $f(x) = -16x^2 + 24x$, where x is the time in seconds after she begins diving.

- Find the maximum height of her dive and the time it takes Molly to reach this height.
- How long will it take her to reach the pool?
- Graph the equation.
- What is the domain and range of the function for this application?