7.5: Graphing Quadratic Functions

Quadratic Forms

Vertex: Used to find vertex of parabola, like completing the square but having the whole equation on one side (rebalance the equation).

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

Where y is the dependent variable, x is the independent variable, a is a vertical scale, and h is a horizontal translation, and c is a vertical translation. (h,c) is the vertex of the parabola. The reason why this works is because (x-h) = 0, meaning that it is the maximum/minimum value at the point Axis of symmetry is h. You can transfer into vertex form by completing the square EX: $y = x^2 - 4x + 5$

$$y - 5 = x^2 - 4x = (x - 2)^2$$

$$y = (x - 2)^2 + 5$$

Standard: Just the typical $ax^2 + bx + c = y$ form, very useful to transition to other forms, otherwise it's pretty useless.

Axis of symmetry is $-b/2a$, which can be proved as the quadratic formula

$$x = -b + sqrt(b^2)$$