**Section 2.1: Graphing Quadratic Functions:**

When graphing quadratic functions, you need to plot the vertex and the x and y intercepts.

* Standard Form: y = ax2 + bx + c
* If the coefficient in front of the x2 term is positive, then the graph opens up; if it is negative, then the graph opens down.
* The vertex is the most important point, it is the point at which the graph is symmetric
* Finding the vertex:
  + The x value of the vertex can be found by using
  + The y value of the vertex can be found by plugging in the x value into the original function and solving for y
* Finding the y- intercept:
  + Plug in 0 for x and solve for y
* Finding the x- intercepts:
  + Factor and set the terms = 0
  + Set the original equation = 0 and solve
  + Use the quadratic formula:

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**Section 2.2: Graphing Polynomial Functions of Higher Degree:**

When graphing functions of higher degree, you need to plot the x and y-intercepts and sometimes the min and max values

* Polynomial function graphs are smooth and continuous curves
* If the degree is odd:
  + With a positive leading coefficient, the left side goes down, the right side goes up
  + With a negative leading coefficient, the left side goes up, the right side goes down
* If the degree is even:
  + With a positive leading coefficient, both the left and right side go up
  + With a negative leading coefficient, both the left and right side go down
* If there are repeated zeros:
  + Odd number: the graph passes through that zero
  + Even number: the graph bounces at that zero
* Finding the y- intercept:
  + Plug in 0 for x and solve for y
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  + Factor and set the terms = 0
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