Quadratics in Intercept Form Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Algebra 1H* Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Per\_\_\_\_\_\_\_\_\_\_\_\_\_

* Recall that there are three forms quadratic functions can be given in:



* Thus far you have mastered **standard form** and **vertex form**.
1. Why do you think **intercept form** is called **intercept form**? What do you think the variables ***p*** and ***q*** represent?
2. Go to desmos.com graphing calculator and graph the following four functions. *Take note of the relationship between the vertex and the intercepts of each graph.*

$$y=-(x+1)(x-3)$$

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

$$y=-\frac{1}{2}(x+5) (x+10)$$

$$y=(x-9)(x-1)$$

1. What information is given in **intercept form**? How can this help us graph the parabola by hand?
2. What information do we still need to complete the graph of the parabola?
3. Based on your answers to #3 and #4, develop a strategy for graphing a quadratic function given in **intercept form** by hand.
4. Using the strategy you developed in #5, identify the vertex, axis of symmetry, domain and range of the following quadratic function, then graph the function. Then, verify your graph by graphing the function in desmos. 

$$y=-(x-3)(x+6)$$

1. Write a quadratic function in **intercept form** that opens down and has intercepts (7,0) and (-2,0). (*Hint - there is more than one possible equation that satisfies these conditions!*)
2. How are **standard form** and **intercept form** connected?
3. Using the digits 0 to 9 at most one time each, fill in the boxes to create three equations that produce the exact same parabola. *This will take a bit of trial and error!*

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