Design a Brochure – "Quadratic Functions"

Project Due Date: September 23, 2016

Purpose: For this project, you will be working to design a tri-fold brochure or an alternate display that will summarize what you have learned during your study of the unit on quadratic functions.

Audience: Assume that the audience for this project is someone who is not familiar with the information. Be creative. Include all graphs/illustrations necessary to understand the explanation. You can also decorate as long as it isn't distracting from the project.

Presentation Options: Tri-Fold Brochure, Poster Board, Powerpoint, Ask Mrs. Hackmann for another presentation option

Project Requirements: The following information must be included on your project.

- **Cover Page**: This must include a title for your brochure and name of student.
- **Vocabulary Section**: These vocabulary terms must be defined in your own words. Please use more than 1 slide if using powerpoint. Images are encouraged.

Quadratic	End Behavior
Intersection	Quadratic Formula
Parabola	X-Intercept/Zeros
Axis of Symmetry	Y-Intercept
Maximum/Minimum	Vertex
Standard Form	Vertex Form

- **Description Section**: Choose six of the following topics to describe in your project.
  - Factoring
    - How to solve when a = 1 and when a ≠ 1
  - Finding Zeros
    - What are they, how do you find them with each method, which method works when?
      - Using factoring, quadratic formula, and/or a calculator
  - Graphing a quadratic function
    - Where do you start, how do you know what each thing is?
      - Include (but limited to): vertex, x/y intercepts, max/min, and end behavior
  - Discriminant
    - What is it good for, how do you know?
      - One real solution/Two real solutions/No real solution
  - Transformations
    - What is a transformation, examples of each transformation?
      - Vertical translation (left/right), Horizontal translation (up/down), Vertical and horizontal translation combo
  - Systems of Equations
    - Substitution or Calculator Graphing

        - Linear-Quadratic Systems vs. Linear-Circle Systems
        - Points of intersection
    - Inequalities
        - How to find x/y intercept and vertex
        - When do you use dashed or solid lines?
        - How do you shade on the graph?
    - Imaginary Numbers
        - When do we see imaginary numbers and how do we solve for them?
        - What do i and i^2 equal?
    - Special Cases
        - Square Root Method and Grouping (when to use these and why?)
    - Comparing Quadratics
        - How to turn a table into standard form.
        - How do you compare a table vs. standard form vs. vertex form?
    - Vertex Form
        - Describe how to use completing the square method in order to find vertex form.
        - Once in vertex form, what does each piece of the equation represent?
- **Word Problems**: Each student needs to come up with a quadratic word problem (go back through your notes to see examples) and solve it on the project. Choose a problem that you feel is an exemplary example of the quadratics unit.

Grading Rubric

Requirement	Points
The brochure includes all the requirements of each section	80
Brochure is neat, organized, and visually pleasing.	10
Presentation to class: eye contact, speaking clearly and loud enough, and providing an explanation throughout your presentation.	10
Project is completed on time.	(-10 per day it is late)