

Int II Quadratics Project

Project Goals:

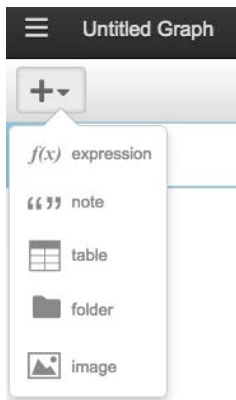
Create a poster showing me you understand how to apply what we've learned about quadratics to the world around you.

1) Find an image from real-life displaying a parabolic shape.

Ideas for pictures:

Google: "parabola _____" or "Time lapse photography _____" and put whatever you're interested in into the blank.

For example: parabola architecture, time lapse water fountain, parabola sand, parabola motion (better yet: parabolic motion), parabola tree, parabola real life, parabola satellite, time lapse projectile, time lapse motor cross, parabola telephone lines (these are actually catenary curves but-unless you're in grad school for engineering-it's close enough), etc.



2) Create a quadratic function that models your image.

We did a lot of this....Possible use of Desmos or Discovery Math Tools.

Save the image to your Desktop along with the image URL—we have to cite sources, even in math class. Upload the image to Desmos using the plus symbol on the upper left-hand side.

Stipulation: the vertex and the y-intercept cannot be the same point. If they are, I will take 10 points off your final project grade.

3) Graph your function over the image using Desmos.

Be sure to print your image with the graph on top of it (when the print page comes up, make sure you're only printing 1 page). I also suggest logging in to Desmos using your school Google ID and saving your graph to Google Drive—just in case you make mistakes and want to reprint it.

4) Label the following points of interest on your graph. You may draw them by hand.

- i) vertex
- ii) roots
- iii) axis of symmetry
- iv) y-intercept

5) Given the vertex (in #4) and a point from DESMOS, show me you know how to find the a-value for the vertex form of a quadratic equation.

6) Write your function in vertex form.

Be sure to show all your work and use complete sentences. For example, "The vertex form of the function is _____"

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7) Write your function in factored form.

Be sure to show all your work, including how to find the a-value
Use complete sentences.

8) Put your equation into standard form.

Using either the vertex form or the factored form, show you know how to put your
function into standard form.

Again, be sure to show all your work and use complete sentences.

9) Using the standard form of the function, convince me you know how to calculate the
vertex from the equation AND that it is the same vertex as it is for your graph.

This means you need to calculate the vertex from the standard form.

10) Use the quadratic formula to show the roots from the standard form of your equation
are the same as the roots on your graph.

11) Your name should go on the back of the poster and NOT on the front.

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Your project will be graded using the following rubric. You can pick what grade you earn by using the rubric as a guide when completing your project.

Category:	Points:	<u>Your Score</u>
<u>Real Life Image: (4pts)</u>		
Real-life example/fit	2 points	
The location (or URL) of the item is included.	2 points	
<u>Graph: (12 pts)</u>		
Vertex	2 points	
Roots/Zeros/X-intercepts	4 points	
Axis of Symmetry	2 points	
Y-intercept (-10pt if same as vertex)	2 points	
All parts are labeled correctly.	2 points	
<u>Calculations: (52 pts)</u>		
Calculate a-value from vertex and a point	6 points	
Vertex Form of equation	4 points	
Factored Form of equation	10 points	
Conversion into Standard Form	10 points	
Calculation of Vertex from Standard Form	8 points	
Same as Graph Vertex	2 points	
Roots/Zeros from Quadratic Formula	10 points	
Same as Graph Roots	2 points	
<u>Poster: (8 pts)</u>		
Organization with sections clearly labeled	3 points	
Readability/Neatness	2 points	
Complete Sentences	2 points	
Your name is on the back of the poster (and it is NOT on the front)	1 point	
Bonus—make it “display” worthy	(2 points)	
<u>Total:</u>		
	<u>76 pts</u>	

If you would like to create a digital poster rather than a physical one, come talk to me.