PreCalculus 11 Quadratics Assignment

OPTION 1

OVERVIEW

Use GeoGebra to create two parabolas and show special points.

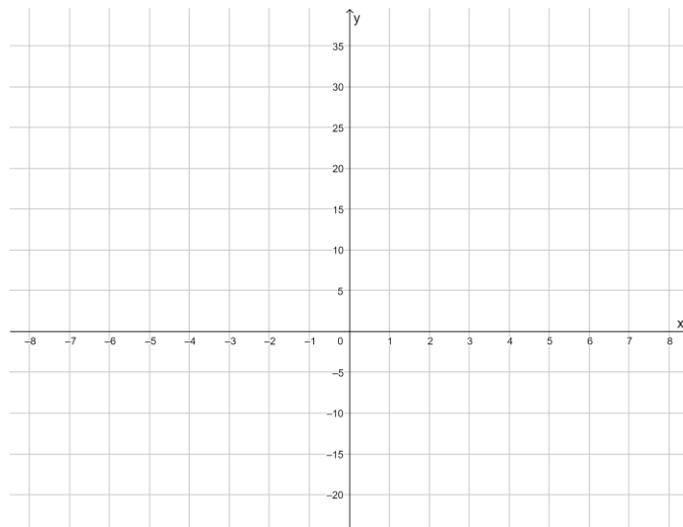Use algebra to demonstrate how to calculate the special points.

DETAILS

1. Open a google doc, give it a title and a sentence to introduce the task.
2. Open a geogebra.org/classic page and set up the graph window as follows:

   Label the axes 'x' and 'y'.

   Set the x 'distance' to 1; Set the y 'distance' to 5.

   Set the grid to major grid lines only.

   Drag window such that $-8 \leq x \leq 8$, and $-20 \leq y \leq 35$ like this:

3. Draw a graph in the form $y = a(x - p)(x - q)$ such that you see it clearly on the window. (Seeing it clearly means that all special points are visible.
   Click 'show special points'. (kebab menu on the algebra window). Select 'name and value' for the label on each special point.
   Copy the graph to your google doc.
   Leave space on your google doc to show how to calculate each of the special points.

4. Draw a graph in the form $y = a(x - h)^2 + k$ such that you see it clearly on the window. (Seeing it clearly means that all special points are visible.
   Click 'show special points'. Select 'name and value' for the label on each special point.
   Copy the graph to your google doc.
   Leave space on your google doc to show how to calculate each of the special points.

5. Complete all the calculations, laying out your algebra so that it is reader friendly.

OPTION 2

Create a model of conic sections.

1. Research 'conic sections' online.
2. Write a paragraph saying who, when and where conic sections were first studies.
3. Draw a nice diagram showing the 4 conic sections on a cone.
4. Watch the youtube paper model: https://www.youtube.com/watch?v=_zCWzPS-i4I
5. Print the templates for the model found under the youtube video.
6. Make the paper model.
7. Submit the paper model and your paragraph/drawing.

OPTION 3

Create a Bezier Curve

Watch and copy the lessons on video 1, 2, 3 and 4 below:
        Video 1: https://youtu.be/IC9WASRyKhw
        Video 2: https://youtu.be/LbbdWFzEOKQ
        Video 3: https://youtu.be/33Qvk_CN-lg
        Video 4: https://youtu.be/tYPmeD_x1tU

Program your own Bezier curve

Find an image online of a car or of a building with interesting architecture. (Example from Coast Salish art here: https://www.geogebra.org/m/erg96as8) Import the image to your GeoGebra file, and show how to fit your Bezier curve to some part of the image.

Submit your GeoGebra file.