**PAP Pre-Cal Advertising Agency Project**

*Pre-Calculus Fourth Nine Week Project:* ***Half a TEST GRADE***

You are a graphic designer for an advertising agency. A local business has come to you to design a new logo for their company. They want the logo to be a recognizable shape that represents the product or service that they provide. The company is also looking at other advertising agencies for their design and will expect you and your competitors to present your design to them.

**Today:** Your table group will pick a company/business that has approached you to design their logo. This will be the company/business you need to design a logo for.

*Now for your part...*

Part One: Original Design

Due to the company for mid-project approval, **Tuesday, May 2nd (B day) & Wednesday, May 3rd (A day):** your basic design on graph paper. Each person in your group will be creating an original design. You will be competing against your group members for the best logo created for your company/business.

**Requirements**: Your picture will need to contain the following:

* At least 8 different shapes – Choose from: *Line, Parabola, Cubic Polynomial, Exponential, Power, Logistic, Sinusoidal (Sine and Cosine will be counted as the same graph), Absolute Value, Rational, Square Root, Logarithms, Circles, Ellipses, Hyperbolas, Polar Rose, Polar CIrcle, and Polar Limacon.*
* A least two different conic sections, at least one trig function, and one polar function must be used.
* A minimum of 25 equations need to be used to create the design. You will need to determine whether the shape will be graphed as a function, a parametric equation, or a polar graph. You need to have a minimum of 5 functions, 5 parametric equations, and 1 polar equation.
* The drawing must be a recognizable shape (basketball, fish, violin, cartoon character…). Each part of the drawing must be drawn in color and numbered, with the numbers and their corresponding shape name identified on the graph paper. (This includes noting how the equation will be graphed – function, parametric, or polar.)

**HINTS:**

\* Keep the picture simple!

\* Draw an x- and y- axis centered in the middle of the polar circle, rose, or limacon.

\* Don’t rotate shapes (keep them vertical or horizontal)

\* Don’t draw small details (Anything vertical must be graphed as polar or parametric.)

\* If a shape is not a function (i.e., it fails the vertical line test), it will require two or more equations to graph it in function mode. Therefore, you must number it twice.

**\*\*\*The Desmos Graphing App is not an acceptable form for graphing this project. It needs to be completed on a TI-83, 84 or TI n’Spire Calculator. Please see your teacher for any exception before the due date.\*\*\***

Part Two: Presentation

A **FINAL Presentation** for the CEO of the company (teacher) AND the Board of Directors (class) will be due on **Wednesday 5/17 (B day) and Thursday 5/18 (A day).** If you are absent that day, your presentation MUST be at school and in the hands of the CEO!!!!!

Display the following items on the front of a half sheet of standard poster-board:

1. Original, approved, drawing on graph paper.
2. Neatly printed list of equations used to produce the picture
3. Work shown for attaining above equations (behind #2).
4. Print out of screenshots displaying your picture

The original image, list of equations, and picture printouts must be easy to see – not hidden behind anything or on the back of the poster! The grading rubric will be turned in – do not attach to poster!

**HINTS:**

\* Start early – do a few equations each day. Budget time to seek help, if needed.

\* ZOOM 5 will square up window. Remember to use same window for all parts. If you have to overlay, and the windows are not the same, it will not match up!

\* Turn the axis off before printing out picture (2nd, ZOOM) or (Menu, View for TI n’Spire)

\* An ellipse (or circle) may not have ends touch in Function mode – but they will in Parametric mode and Polar Mode- choose the mode that best works for your logo!

\* Hyperbola are best graphed in DEGREE mode.

\* Use the correct window and MODE for each type of function. Determine whether you want Degree or Radian mode. In PARAMETRIC and DEGREE mode, your window should have a TMAX of 360 to graph entire conic sections. It may also need a negative t value to graph. Hyperbolas may need several equations to graph restricted t-values.

\* Most equations will require an “a” value. Remember to plug in a point on the graph for x and y to find “a”.

\* When entering domain (on TI-83 or 84), use division keys and parenthesis. The inequality symbols can be found under 2nd, Math (TEST) feature. For TI n’Spire use CTRL, = for a menu of symbols and choose the “such as” symbol { | } from the menu to begin the restriction.

* Example: Line 𝑦=3𝑥+4 with a domain of [-2, 6] should be entered in the calculator in *function mode* as 𝑦=3𝑥+4/(𝑥≥−2)/(𝑥≤6) on the TI-84. On the TI n’Spire enter *f(x)* = 3*x*+4 | (-2 ≤ *x* ≤ 6).
* For *parametric* mode, you will have to determine the *t* (time) value you want the graph to draw from. If you are not sure what *t* values you need, graph the entire function and use the *t****race*** feature to determine the necessary *t* values.

\* If you want to edit an equation on the TI ‘Nspire, go back to Graph Entry and pick the type of graph you wish to edit. Those equations will then reappear.

**Saving and Printing Images on your calculator:**

If you need more than 10 equations in Function Form or more than 6 equations in Parametric Form and are using a TI-83 or TI-84, please see the class webpage for directions on how to save the first set of equations and enter more. You may take a picture of your screen or use a screenshot.

On presentation day, the CEO and Board of directors will choose, by voting, the winning logo from each group. The winner will receive **5 bonus points** to be added to their grade. **This project will count as half a test grade.**

**5 Extra Bonus Points will be awarded to any design that uses more than 40 equations.** Be prepared to show me the picture on your calculator on the due date!

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class Period\_\_\_\_\_\_

**PAP Pre-Cal Advertising Agency**

**Grading Rubric**

**Part One – Grading Rubric**

To receive 30 points (on front of rubric) you will need to have the following on your picture the day it is due:

**Wednesday 5/3 (A Day) & Tuesday 5/2 (B Day)**

|  |  |  |
| --- | --- | --- |
| **Elements** | **Possible Points** | **Points Earned** |
| Original Picture Drawn on Graph Paper with Axis | 2 |  |
| Color Coded and Numbered | 2 |  |
| At least 8 different shapes have been used (2 conic, 1 trig, 1 polar) | 8 |  |
| Parts Numbered Correctly and Identified by Shape | 6 |  |
| At least 25 equations used (Minimum of 5 functions, 5 parametric, and 1 polar) | 8 |  |
| No rotated shapes, made-up functions, or small details used | 2 |  |
| Recognizable Logo that reflects Company Theme | 2 |  |

Total Points Awarded \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*\*\*Your picture will not be approved until all components listed above are completed. The stamped design you submitted is now the picture you must graph. Any changes need to be approved before submitting final project! The final project will not be accepted until original picture has been approved.\*\*\*

**Remember – all elements of your picture will need to be graphed on your calculator! Keep it simple and manageable. Retain this rubric after having your picture checked off. It is due the day you present your project!**

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class Period\_\_\_\_\_\_

**PAP Pre-Cal Advertising Agency**

**Grading Rubric**

**Part Two – Grading Rubric**

|  |  |  |  |
| --- | --- | --- | --- |
| Part One Picture- See back of this page | **Due** A: Wednesday 5/3B: Tuesday 5/2 | 30 |  |
| Part Two: 1st Checkpoint-½ of equations calculated and graphed on my calculator with work shown / matches original drawing | **Due** A: Thursday 5/11B: Wednesday 5/10 | 30 |  |
| Part Two: Last Checkpoint-Final ½ of equations calculated and graphed on my calculator with work shown / matches original drawing | **Due** A: Thursday 5/18B: Wednesday 5/17 | 30 |  |
| Final Picture-Has been printed out and displayed on poster with axis turned OFF. Matches original design – all shapes on graph paper appear in picture. Showed final picture on my graphing calculator to my teacher. | **Due** **A: Thursday 5/18****B: Wednesday 5/17** | 10 |  |

Parts not turned in on time will be subjected to a 10 point deduction per late day.

Extra Credit: 5 points for using 40 or more equations

 5 points for being voted Favorite by Board of Directors

Final Grade: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Businesses:**

Sonic

Ernesto’s Mexican Café

Six Flags over Texas

Disney

Nickelodeon

Dick’s Sporting Goods

Carlos’ Bakery

Olive Garden

Kroger

Prosper ISD

McDonalds

Starbucks

AT & T

Staples Office Supplies

Wal-Mart

Palio’s Pizza

Prosper Vet Clinic

Texas Rangers Baseball Club

Dallas Cowboys Football Club

Dallas Stars Hockey Team

FC Dallas Futbol Club

Frito-Lay

Pet Smart

Chick Fil A

Krispy Crème Donuts

Town of Prosper

AMC Movie Theater

Top Golf

Nebraska Furniture Mart

IKEA

General Motors Corporation

It’Sugar Candy Store

Peachwave Frozen Yogurt

American Airlines

Supercuts Hair Salon

Prosper Blooms Florist

Dallas Zoo

Dallas Aquarium

Great Wolf Lodge

Nike

Coca-Cola

Main Event Entertainment

Apple Technology Company

Pixar Studios

Nintendo

Toys ‘R Us

National Dairy Council

Destin, Fl

Vail, CO

New York, NY

Washington, D.C.

Seattle, WA

Los Angeles, CA

Hawaiian Vacation

Alaskan Vacation

Carnival Cruise Lines

Hawaiian Falls Water Park

A+ Tutoring Service

Stonebriar Mall