Dougherty Valley High School
AP CALCULUS BC PROJECT - VISUALIZE CALCULUS

USING VISUAL BASIC, JAVA, or another programming language create your own graphing calculator.

Who's eligible - You may work in groups of two.:

- Students who scored a 5 on the Calculus AB exam may choose to work on this project OR attend class on a regular basis.
- Students who did not score a 5 on the Calculus AB exam may do the project within the following guidelines
    - you must score a >90 on the final exam for the project to count - this demonstrates a 5 on the AP calculus AB exam
    - you do not have the option to attend class - you must attend class

Expectations:

- This will be an independent study program. You will check into class at the beginning of each period and decide to participate in class or work quietly in the back of the room on the project.

- Periodically you will update Mr. Duran and Ms. Cardakli on your project status.
    - If it becomes evident that NO PRODUCTIVE work is being done your right to work on this project is REVOKED.

- On project status days you will show Mr. Duran your software. Mr. Duran has a programming background and knows if you plagiarized the code. Collaboration with your classmates is good, searching the web is good but WRITE YOUR OWN software. **CHEATING IS NOT COOL……..**

- You are responsible for taking all the formal assessments given in class. The grade on this project can be used to replace TWO test grades and the TWO quiz grades.

- If you become a class distraction your rights to work on the are REVOKED.

- **Due date:** During semester 1 finals week you will demo your project to Mr. Duran and Ms. Cardakli for your final grade. During the first week of school of semester 2 you will present you project to the class in the form of an oral presentation and demo.

- **NOTE:** When Mr. Duran did this project with his BC classes the students did some incredible work and they all earned extremely high grades. I know you will do the same quality of work.

See Mr. Duran for an example of what the final product should look like.

Grading Rubric:
Your project will be evaluated by Mr. Duran and Mr D's "old" colleagues from the high tech world. You will be asked to make a professional presentation demonstrating your work.

You need to show:

1) Graph ANY polynomial rational expression --- 5 points
   - Clearly highlight removable discontinuities --- 5 points

2) Graph ANY polynomial function. ---- 5 points
   - Graph the first derivative ---- 10 points
   - Graph the second derivative ---- 10 points
   - Use various colored lines and markers to find points of relative max/min --- 5 points
   - Use various colored lines and markers to find points of inflection --- 4 points

3) Graph logarithmic(ln , log), trigonometric (sin, cos, tan), or exponential functions -- 10 points
   - Graph the first derivative ---- 5 points
   - Graph the second derivative ---- 5 points
   - Use various colored lines and markers to find points of relative max/min --- 4 points
   - Use various colored lines and markers to find points of inflection --- 4 points

4) Given any f'(x) accurately show the fundamental theorem of calculus for any two values on the given domain. - 10 points

5) Software block diagram and print out of your code with **COMMENTS**
   - the derivative algorithm - 2 points
   - the integration algorithm - 3 points
   - the fundamental theorem of calculus algorithm - 3 points

6) Professional Power Point / Google Presentation --- 10 point

Decison to Work on Project is Wednesday September 13

Parent / Guardian Signature: I agree to let my daughter / son work on this project: