

## **AP Calculus BC Summer Work 2020**

Teacher: Mr. Conrad - [tconrad@tiltonschool.org](mailto:tconrad@tiltonschool.org)

Welcome to AP Calculus BC! The Calculus BC course is similar to the Calculus AB insofar as how it is constructed, the type of critical thinking used, creative problem solving expected, and the use of mathematical representations to be interpreted. The goal of this Summer Work is to provide for you concrete examples of the types of problems you need to know how to solve, as well as an opportunity to begin to THINK LIKE A DESIGNER OF PROBLEMS so that you understand what you should be preparing to be able to do by the end of the course.

To do this, I will ask you to review the Calculus AB topics in a creative, unusual manner. Below are attached the PDF files for the 2009 and 2010 AP Calculus AB Examination Free Response Questions, as well as their solutions. I invite you to peruse these 12 problems and solutions. In them you will find repeated patterns of many various types of Rates of Change, Derivatives, and their Applications; Areas and Volumes and their Applications; behavior of many and various functions including use of limits, derivatives, anti-derivatives to analyze them; all of which can be viewed Graphically, Symbolically, Numerically and/or Verbally, and the connections between and among all these various facets of mathematical analysis. Understanding these types of connections is your job this summer.

So, your work this summer consists of the following:

- 1) Though it will NOT BE GRADED, it would be best for you to try each of the 12 questions before looking at their solutions. Remember that as much as 50% of the AP Calculus BC Examination is wholly Calculus AB Topics and Applications!
- 2) Next, write a reflection of what patterns you seem to see in many of the different problems that you believe you can expect to continue to see in your work in Calculus, both AP Calculus BC and beyond. What seems to be important? Why do you think so? Don't write more than one page double spaced about this.
- 3) Based upon what you have seen and reflected upon from the problems on the 2009 and 2010 Examinations, create 6 Free Response Questions. Though these questions should assess the same skills, topics, representations etc. that you see on the 2009/2010 Examinations, they should be entirely of your own design. Be CREATIVE in writing the questions!! You can assess the same SKILLS that are assessed on the 2009/2010 Exams and ask similar questions, but be sure whatever you ask has a connection to the big picture of what a Calculus student should know and understand.
- 4) After writing your free response questions, create a solution key to be submitted with (and on a separate document from) your 6 questions.

[2009 AP Calc AB FRQ](#)  
[2009 AP Calc AB FRA](#)

[2010 AP Calc AB FRQ](#)  
[2010 AP Calc AB FRA](#)