



DEPARTMENT OF MATHEMATICS



Clavis East High School

May 28, 2021

Dear AP Statistics or AP Calculus student and family:

You are enrolled in Advanced Placement Statistics or AP Calculus for the upcoming school year. In order to be successful, the Advanced Placement College Board suggests that students purchase and become familiar with a graphing calculator. If you are in AP Stats you need one with statistical applications. The one most highly recommended and user friendly for both AP Statistics and AP Calculus is the **TI-84 CE, TI-84 Plus, or TI-84 Silver Edition**. It is strongly encouraged that each student purchase their own so that they may be taken home to work on assignments outside of class time. This will be the calculator that is used in both courses for demonstration and instructional purposes. This calculator runs about \$90 - \$120. Traditionally the best prices have been at Target, Wal-Mart, Office Depot, Costco or Office Max. Target usually has a great sale the end of July or first part of August during which you can get it for well under \$100. **We will begin using the calculator in class the first day of class.** Specialized instruction will be given during the progress of the courses as we cover the topics in each class. Students who are completing AP Statistics and/or AP Calculus have found it to be an invaluable tool. Specifically, for AP Statistics, this is the **only** calculator with all of the statistical functions that are part of the curriculum. It will also serve your student well for standardized tests and other math courses he/she enrolls in during high school or college. Please contact Mrs. Olson or Mr. teNyenhuis if you are unable to purchase a TI graphing calculator or if you already have a different graphing calculator (email jeriolson@cusd.com or gabrieltenyenhuis@cusd.com after August 9th).

Questions may be directed to the instructors for these courses. A graphing calculator is not required, but is helpful, for the non-AP Statistics course. This calculator is appropriate for all three AP math courses, SAT and ACT exams, as well as college math courses. There is also summer work for each AP math course posted on the REC website under AP courses.

Sincerely,

Mrs. Jeri Olson

Mathematics Department Chair

AP Statistics Instructor

Mr. Gabe teNyenhuis

Math Team Advisor

AP Calculus AB and BC Instructor

AP Calculus AB/BC Optional Summer Review Material

The AP Calculus course you are about to take is based on your foundation in mathematics – all the math that you have ever learned will come into play in this course. It is possible that some of that material you knew fairly well at one time, but unfortunately, without everyday use, you just plain forgot it. It is also possible that you never really learned it well enough. When you start your AP Calculus course, I assume that you have mastered a lot of the mathematics and techniques that you need to know. For some of you, this is a bad assumption. Unfortunately, there is not enough time to begin the year by reviewing and getting everyone's knowledge at the same level. So to help, this optional review contains much of the material from precalculus that you really need to know going into AP calculus. It will allow you to practice many of the concepts that were in precalculus and are quite likely to show up in AP Calculus. One reason that many students worldwide struggle in AP calculus is because their precalculus abilities are lacking. Spending several hours on this material over the course of the summer will set you up for a good start in August.

The optional review material can be found at:

<https://tutorial.math.lamar.edu/Classes/Calcl/ReviewIntro.aspx>

The material is divided into 10 topics. For each topic, there are Notes with solutions and explanations, and Practice Problems with solutions and explanations. Any time that you spend reviewing any or all of these topics will be of benefit and contribute to a successful experience.

Here is a list of topics that are addressed.

Functions – In this section we will cover function notation/evaluation, determining the domain and range of a function and function composition.

Inverse Functions – In this section we will define an inverse function and the notation used for inverse functions. We will also discuss the process for finding an inverse function.

Trig Functions – In this section we will give a quick review of trig functions. We will cover the basic notation, relationship between the trig functions, the right triangle definition of the trig functions. We will also cover evaluation of trig functions as well as the unit circle (one of the most important ideas from a trig class!) and how it can be used to evaluate trig functions.

Solving Trig Equations – In this section we will discuss how to solve trig equations. The answers to the equations in this section will all be one of the “standard” angles that most students have memorized after a trig class. However, the process used here can be used for any answer regardless of it being one of the standard angles or not.

Solving Trig Equations with Calculators, Part I – In this section we will discuss solving trig equations when the answer will (generally) require the use of a calculator (*i.e.* they aren't one of the standard angles). Note however, the process used here is identical to that for when the answer is one of the standard angles. The only difference is that the answers in here can be a little messy due to the need of a calculator. Included is a brief discussion of inverse trig functions.

Solving Trig Equations with Calculators, Part II – In this section we will continue our discussion of solving trig equations when a calculator is needed to get the answer. The equations in this section tend to be a little trickier than the “normal” trig equation and are not always covered in a trig class.

Exponential Functions – In this section we will discuss exponential functions. We will cover the basic definition of an exponential function, the natural exponential function, i.e. e^x , as well as the properties and graphs of exponential functions

Logarithm Functions – In this section we will discuss logarithm functions, evaluation of logarithms and their properties. We will discuss many of the basic manipulations of logarithms that commonly occur in Calculus (and higher) classes. Included is a discussion of the natural ($\ln(x)$) and common logarithm ($\log(x)$) as well as the change of base formula.

Exponential and Logarithm Equations – In this section we will discuss various methods for solving equations that involve exponential functions or logarithm functions.

Common Graphs – In this section we will do a very quick review of many of the most common functions and their graphs that typically show up in a Calculus class.