

Summer Assignment: AP Physics C

Welcome to AP Physics C! This is a challenging class and due to the nature of the curriculum, requires us to move at a fairly brisk pace for the entire year. In order to allow us the most time possible, some preliminary topics will need to be covered by you this summer. These are, for the most part, background topics in mathematics that we will need to discuss the physics while in the class together.

These summer assignments are going to be due on the day of orientation in August (actual date TBD - check your hermits email for updates over the summer). This assignment consists of two parts: written notes on the presented slides and information, and written solutions to practice problems. Both of these parts are required and this assignment will count as your first homework grade of the semester. There will also be a quiz on this material during the first few days of class, after time for a brief Q&A to clear up misunderstandings.

The topics of the summer assignment are as follows:

1. Calculus Review
 - a. Derivatives
 - b. Integrals
 - c. Graph Sketching and interpretation
2. Vector Review
 - a. Definition of vectors
 - b. Vector Addition

Assignment Instructions:

1. Calculus Crash Course
 - a. Review the three powerpoint slide decks, each covering one of the above topics. In each of the slide decks, you will find some multiple choice questions. These are the practice problems that must be completed.
 - i. The practice problems require **solutions** not simply answers. Simply putting the correct letter is not sufficient. I am interested in seeing your work neatly organized to communicate your thought process. This may be mathematical as well as written words.
 - b. In each of the slide decks, you only need to complete the following sections:
 - i. Derivatives
 1. Derivative Rules: Power, Constant & Sum/Difference
 2. Derivatives at a Point
 3. Higher Order Derivatives
 4. Derivatives of Trig Functions
 5. Derivatives of e^x and $\ln(x)$
 - ii. Integrals
 1. Area under a Curve
 2. Antiderivatives
 - iii. Graph Sketching
 1. Introduction
 2. Extreme Values: Graphically

2. Vectors
 - a. Take notes as above on the slide deck and complete questions in the following sections only
 - i. Vectors and Scalars
 - ii. Basic Vector Operations and Vector Components
 - b. The Free Response problems are there for extra practice and challenge problems. They will not be collected but should be done to confirm your understanding.
 - c. The Cycle 0 notes are an additional resource that you should use as you work through the material.
3. These problems should be done on loose-leaf paper for submission on the day of our orientation

These assignments are to be done individually and are subject to the same Honor Code as all St. Augustine assignments are. If you have specific questions about the assignment, reach out to Mr. Grealis via email for assistance or guidance.