

## AP CALCULUS AB SUMMER 2023

The primary objective of AP Calculus summer work is to dig into the prerequisite mathematics by investigating topics algebraically, graphically, and numerically. Ongoing preparation for the free response section of the AP Exam requires that you take care to present solutions to even the most ordinary problem that contain these components by clearly demonstrating both your methods and conclusions. AP-style justification involves a specific response structure that we will develop and employ throughout the year—prepare for it by paying careful attention to the *form/structure* of your solution in addition to the strictly mathematical components.

Your graphing calculator is a powerful tool for exploration; use it to lead you to a deeper understanding and to check reasonableness of answers but realize that you must still provide a well-substantiated analytical answer that includes mathematical justification. In keeping with the current *College Board* rounding guidelines answers are required to be rounded correctly or truncated to the nearest thousandth. I suspect that most of you have been somewhat casual or uncertain about rounding rules—use your summer work as a way to get this new requirement dialed in to the ‘second nature’ elements of your mathematics practice.

In this immersive course, you get to learn how things really work through the lens of Calculus. Learning means sharing your ideas and expressing yourself as part of a learning community. Be prepared to discuss your thinking in class; I expect and require this of you.

FUN, FUN, FUN: There are six sets of NOTES each accompanied by a problem set. Work steadily on strengthening throughout the summer; incorporate upgraded modes of thinking.

Read through the notes to refresh your thinking. Pay particular attention to the mathematical language. Tempting as it may be, try to not say, "...nah yah, I know this stuff..." and then proceed to do some probs. Truly think on the conditional statements (if-then) inherent in the familiar rules and tools that you routinely use. *College Board's* justification-based analysis requires that you reference/verify these conditions along with evidence-of-method as part of free-response answers. Create a compendium of thoughtful, organized, well-labeled, complete work—printed problem set, loose paper, back of a paper bag, your choice. Turn in your entire collection on the first day of school to receive CFC (check for completion) credit; no late work will be accepted. Make it your habit to work with justification on multiple-choice problems—they are designed to train you in AP-style presentation of work.

Express your solution completely using the multiple representations mentioned in the introduction. Contact me with questions/corrections...mathematical or procedural at [jherro@marisths.org](mailto:jherro@marisths.org). You may collaborate...in fact, I encourage you to do so. DO NOT USE ANY INTERNET-BASED RESOURCES FOR ACTUAL PROBLEM SOLVING; rather, deepen your scope in a way that best positions you to present solutions that entirely reflect your understanding.

STAY CONNECTED and let me know how your studies are going.