AP Calculus Test Information, Tips, and Common Errors

Exam Format:

Multiple Choice – 50% of grade

- Part A: 28 questions, no calculator, 55 minutes
- Part B: 17 questions, calculator, 50 minutes

Free Response – 50% of grade

- 2 questions, calculator, 30 minutes
- 4 questions, no calculator, 60 minutes

Tips

- *Show all work* – Remember that the grader is not really interested in finding out the answer to the problem. The grader is interested in seeing how you solved the problem.
- *Do not round intermediate answers* – Store them in your calculator (STO→) so that you can later use the exact answer.
- *Do not let points at the beginning keep you from getting points at the end* – If you can do part (c) without doing (a) or (b), do that. If you need to import an answer from part (a) to do part (c), make a credible attempt at part (a) so that you can import an answer (even if it is the wrong one) to finish part (c).
- *If you use your calculator to solve an equation/integral, write the equation/integral first* – An answer without an equation/integral may not get full credit, even if it is correct.
- *Do not waste time erasing bad solutions* – If you change your mind, simply cross out the bad solution. *Crossed-out work will not be graded.* If you have no better solution, leave the old solution because it might be worth a point or two.
- *Do not use your calculator for anything except:* (a) graphing functions, (b) computing numerical derivatives, (c) computing numerical integrals, and (d) solving equations. DO NOT use your calculator to determine min/max points, concavity, inflection points, increasing/decreasing intervals, domain, or range. (You can explore/verify all of these with your calculator, but your solution must be supported by calculus.)
- *Be sure you have answered the question (including units if they ask for it)* – For example, if it asks for the maximum values of a function, do not stop after finding the *x*-value (where it occurs). Be sure to express your answer in correct units if units are given.
- *If you can eliminate some incorrect answers in the multiple-choice section, it is to your advantage to guess* – Wrong answers can often be eliminated by estimation or graphing.
- *If they ask you to justify your answer, think about what needs justification* – They are asking you to say more. Write your answer in one or two short, clear, concise sentences. Do not ramble. Work is NOT justification (*including sign charts*).

Top Ten Student Mistakes

- If $f'(x)=0$, then there must be a max/min at that point! Not always true, use a sign chart.
- If $f''(x)=0$, then there must be an inflection point! Not always true, use a sign chart.
- Average rate of change of f on $[a, b]$ is $\frac{f(b)-f(a)}{b-a}$, NOT $\frac{f'(a)+f'(b)}{2}$.
- Average value of a f on $[a, b]$ is $\frac{1}{b-a}\int_a^b f(x)dx$, NOT $\frac{f(a)+f(b)}{2}$.
- Volume by washers is $\pi\int_a^b \left(R^2-r^2\right)dx$, NOT $\pi\int_a^b \left(R-r\right)^2 dx$.
- Omitting the constant of integration.
- Assuming graders will know what "it" or the other pronouns refer to.
- If the correct answer came from your calculator, the grader will assume the setup was correct. You must show where your answer came from.
- $\int \frac{1}{x}dx = \ln|x|+C$, but $\int \frac{1}{f(x)}dx \neq \ln|f(x)|+C$
- Chain Rule errors…