AP CALCULUS AB COURSE TIPS
School Year 2018 - 2019

Things To Remember - By Ben Cornelius
(Common Mistakes That Make Readers Frustrated)

- There is no need to simplify arithmetic. It won't make the answer any more correct (even in a long Riemann sum).
- Don't cross out your work unless you know you can do better.
- Be sure to label your answers and use correct units.
- If you are worried that your result in part a) is incorrect, use it anyway to finish the problem.
- If you use your calculator, describe it clearly in mathematical terms, not in calculator speak.
- Don't write bad math. (e.g. "Slope of the derivative." or "6.2368 = 6.237" or "-17.21 = 17.21")
- Remember: 3 decimal places, rounded or truncated. (More is ok.)
- Don't write f(x) = 2(1.5) + 3 when you really mean f(1.5) = 2(1.5) + 3.
- Every pronoun needs an antecedent. Name the function you are referring to. Do not say, "The slope is ...". Say, "The slope of g is ....", especially when more than one function is being discussed.
- When asked to write an integral, start with the limits and any constants of multiplication. Then you can make a guess as to the integrand.
- Know the difference between increasing and positive. f is increasing when f' is positive.
- Calculator work will be limited to the four required functionalities: graphing, roots, numerical derivative, and numerical integration. You will not be required to do anything else with your calculator and no question will be asked where using an additional feature would give an advantage. (e.g. curve fitting)
- Know the difference between local and global extrema.
- Know the difference between the extreme value (y-coordinate) and the location of the extreme value (x- and y-coordinate).
- When justifying local extrema or points of inflection, make sure you summarize the results in complete sentences.
- Make sure the equations flow correctly from one line to the next. Don't use stream of consciousness.

Global Tips on the AP Calculus AB Exam

- *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 if you know how to solve the problem.
- *Do not round partial answers.* Store them in your calculator so that you can use them unrounded in further calculations.
- *Do not let the points at the beginning keep you from getting the points at the end.* If you can do part (c) without doing (a) and (b), do it. If you need to import an answer from part (a), make a credible attempt at part (a) so that you can import the (possibly wrong) answer and get your part (c) points.
- *If you use your calculator to solve an equation, write the equation first.* An answer without an equation might not get full credit, even if it is correct.
- *If you use your calculator to find a definite integral, write the integral first.* An answer without an integral will 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 after you have written the good one. Crossed-out work will not be graded. If you have no better solution, leave the old one there. It might be worth a point or two.
- *Do not use your calculator for anything except*: (a) graph functions, (b) compute numerical derivatives, (c) compute definite integrals, and (d) solve equations. In particular, do not use it to determine max/min points, concavity, inflection points, increasing/decreasing, domain, and range. (You can explore all these with your calculator, but your solution must stand-alone.)
- *Be sure you have answered the problem.* For example, if it asks for the maximum value of a function, do not stop after finding the x at which the maximum value 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 advantageous to guess.* Otherwise it is not. Wrong answers can often be eliminated by estimation, or by thinking graphically.
- *If they ask you to justify your answer, think about what needs justification.* They are asking you to say more. If you can figure out why, your chances are better of telling them what they want to hear. For example, if they ask you to justify a point of inflection, they are looking to see if you realize that a sign change of the second derivative must occur.
- *Don't simplify unless necessary.* Once your answer is in a purely numerical form, you can stop. You don't need to continue reducing the answer.

AP CALCULUS AB COURSE TIPS
School Year 2018 - 2019

Using the Calculator Effectively on the AP Calculus Exam

- Set the calculator to radian mode.
- On free-response problems, report decimal approximations to three decimal places after the decimal point.
- Be proficient with the four expected calculator capabilities:
  - Graphing a function. Use information in the question to help determine the viewing window.
  - Finding zeros of functions (solving equations numerically). Be comfortable with the graphical solver (using intersect, root/zero commands) and equation solver capabilities.
  - Numerically calculating the derivative of a function at a point
  - Numerically calculating the value of a definite integral
- On the calculator portions of the exam, use the calculator to evaluate definite integrals and numerical derivatives. Show the "setup" in free-response problems.
- Watch parentheses carefully when entering functions.
- Store functions in the "Y=" menu to avoid entering functions multiple times.
- If a point of intersection or zero is needed for a calculation (derivative or integral), store that value into a variable. Use the variable in the subsequent calculation.
- Tracing along a graph to find a point of intersection or zero might not produce the required accuracy.
- Calculations from the graph screen (derivatives or integral values) might not produce the required accuracy.
- A justification requires a mathematical (non-calculator) argument.
- Use standard mathematical notation, not calculator syntax, on the exam.

General Strategies for AP Exam Preparation (text book)

- Throughout the school year
  - Register with your teacher/coordinator
  - Pay your fee (if applicable) on time
  - Take good notes
  - Work with others in study groups
  - Review on a regular basis
  - Evaluate your test-taking strengths and weaknesses

- Several Weeks Before
  - Combine independent and group review
  - Get tips from your teacher
  - Do lots of mixed review problems
  - Check your exam date, time, and location
  - Review the appropriate AP Calculus syllabus
  - Make sure your calculator is on the approved list

- The Night Before
  - Put new batteries in your calculator or make sure it is charged
  - Set your calculator in Radian Mode
  - Lay out your clothes and supplies so that you are ready to go out the door
  - Do a short review
  - Go to bed at a reasonable hour

- Exam Day
  - Get up a little earlier than usual
  - Eat a good breakfast/lunch
  - Get to your exam location 15 minutes early

- Exam Night
  - Relax—you have earned it