Exam Tips by Dan Kennedy

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 partial answers 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 parts (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:
to (a) graph functions, (b) compute numerical derivatives, (c) compute definite integrals, and (d) solve equations. In particular, do not use it to determine maximum/minimum points, concavity, inflection points, increasing/decreasing, domain, and range. You can explore and confirm all of these with your calculator, but your solution must stand alone.

Be sure you have answered the problem.
For example, if the problem 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 you answer in correct units if units are given (or asked for).

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 you answer, think about what needs justification.
They are asking you to say more. If you can figure out why, you 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.

Top Ten Student Errors

1. $f''(x) = 0 \iff (x, f(x))$ is a point of inflection.

2. $f(x)$ is a maximum (minimum) $\iff f'(x) = 0$.

3. The average rate of change of f on $[a, b]$ is $\dfrac{f'(a) + f'(b)}{2}$.

4. Volume by washers: $\displaystyle\int_a^b \pi(R(x) - r(x))^2 \, dx$.

5. Separable differential equations can be solved without separating the variables.

6. Omitting the constant of integration, especially in initial value problems.

7. Graders will assume the correct antecedents for all pronouns used in justifications.

8. If the correct answer came from your calculator, the grader will assume your setup was correct.

9. Universal logarithmic antidifferentiation: $\displaystyle\int \dfrac{1}{f(x)} \, dx = \ln|f(x)| + C$.

10. $\dfrac{d}{dx} f(y) = f'(y)$ and other chain rule errors.