Exam 3 covers sections 3.8, 3.9, 3.10, 3.11, 4.1, 4.2, 4.3, 4.4, 4.5, 4.7


2. Chapter 4 Review, p. 361: T/F Quiz 1-15,18, Exercises 1-6, 7 - 13, 15 - 17, 59.

3. Your exam will contain ONE Calculus Skills No Partial Credit problem (Skills Question). It will come from 3.8. These can be found at http://calculus.math.rpi.edu

4. There will be up to 5 True-False Questions on your exam coming from the end-of-chapter reviews. I may change the wording on the questions and thereby also change them from True to False or vice versa - so be sure to read these carefully on your exam.

5. For Section 3.8: You need to be able to differentiate functions involving logs - both natural logs and logs of other bases. Also, if a question specifically states "Use logarithmic differentiation ...", you must use the steps described on page 247.

6. For Section 3.9: You need to be able to do two things from this section: evaluate hyperbolic functions and take the derivative of functions that involve hyperbolic functions. The definition of the hyperbolic functions on page 250 will be given to your test. If you chose to take the derivative using the definitions, you must convert your answer back to a hyperbolic function.

7. For Section 3.10: For a related rates problem, you must be sure to: define the variables in your problem, make a sketch of the problem with your variables labeled, write down the equation that relates your variables, state all variables and rates of change that are known, differentiate both sides of your equation, and solve for the unknown rate of change.

8. For Section 3.11: Be able to find the differential and evaluate it. You may be asked to only find the differential or find the differential and evaluate. You should be able to answer a Linearization question ... the linearization of a function is simply the tangent line!

9. For Section 4.1: There are four types of problems from this section: 1) find the absolute maximum and absolute minimum for $f$ on a closed interval (problems 47 - 52, 57, 58), 2) find the critical numbers for $f$ (problems 31 - 46), 3) Identify local and absolute max/min graphically (problems 3 - 6) and 4) sketch a continuous function that satisfies certain conditions (problems 7 - 14)

10. For Section 4.2: Be comfortable with problems that ask you to use the Mean Value Theorem given $f$ and a closed interval. (problems 11 - 14)

11. For Section 4.3: One type of problem that you should be able to do from this section is sketch a continuous function that satisfies certain properties (problems 26 - 30). The other type of problem from this section asks you to find critical numbers for $f$, intervals of increasing, decreasing, concave up, concave down, identify local extrema and inflection points (problems 11 - 20, 33 - 44 no sketch).

12. For Section 4.4: Be comfortable solving limits from this section - many of which require the use of L'Hopital's Rule, but not all. If you are going to use L'Hopitals rule on a partial credit problem, be sure to indicate the indeterminate form before applying the rule. (problems 5, 7, 9-11, 15, 17, 21, 29, 45, 47, 49) Note that problems of the form $1^\infty$, $0^0$, or $\infty^0$ will not be asked.

13. For Section 4.5: Not asked to sketch from this section.

14. For Section 4.7: Be comfortable solving the following problems 2-6, 8, 10-12, 29 and 30. You will have a problem like one of these on your exam.
Directions found on the front cover of your text
Use of books, notes or calculators is NOT permitted.

Please show all your work! Answers without appropriate supporting work may not receive full credit.
Clearly indicate your answers to each problem by underlining them or placing a box around your answers!

Trigonometric functions at the values 0, $\pi/6$, $\pi/4$, $\pi/3$, $\pi/2$, etc must be evaluated!


2. Answer to the fenced enclosure problem: Dimensions 24X48 where length parallel to river is 48 feet and Area = 1152 square feet.

3. Answer to Norman Window problem: The window would have a base length of $\frac{32}{4+\pi}$ feet and a height of $\frac{16}{4+\pi}$ feet.