3450:221 Calculus I, Kreider
Exam 2 Preparation

The exam is scheduled for Friday 18 June. Try to arrive a few minutes early, as I will start the exam as soon as I can. I can also give you an extra 5 minutes at the end. Bring a calculator and a formula sheet.

The exam will cover sections 3.6 through 4.6. There are 12 problems. There is less theory and more computation than on Exam 1.

To study for the exam, work problems. Do the quiz problems over again. Do appropriate problems at the end of each chapter.

Here is a list of topics that you need to know:

- Concepts, Definitions, Formulas

  - product rule, quotient rule, chain rule
  - Definition of the differentials dx and dy
  - Definition of critical points and inflection points
  - Rolle's Theorem, Mean Value Theorem

- Calculations, Standard Problems

  - Identify whether a function is increasing or decreasing by the sign of its derivatives
  - Use implicit differentiation to find dy/dx
  - Take higher order derivatives of not so nasty functions
  - Set up and solve a standard related rates problem
  - Compute a linear approximation for a simple function, and use it to approximate given values
  - Solve a standard differential error analysis problem
  - Find the critical points and/or the inflection points of a given function
  - Find the relative and absolute extrema of a function on its entire domain
  - Find the absolute extrema of a function on a closed interval
  - Evaluate limits at infinity
  - Verify that a function satisfies the conditions of Rolle's Theorem or the Mean Value Theorem
  - Use the Mean Value Theorem to solve a standard application (similar to the speeding example we did)
  - Sketch a rough graph using intercepts/roots and asymptotes.
  - Sketch a graph of f given some information about it.