

Information for the Final Exam

The final exam is Monday, December 13, 8:00-10:00 in the usual classroom. You will not be allowed calculators or notes of any sort.

The following are the big ideas that will show up on the final. Example problems are listed below. This list is not exhaustive, but it is generally representative. You should also look over previous midterms, the solutions to which are online.

1. You need to be able to state the definition of the derivative, and be able to find the derivative of a function using the definition.
2. You need to be able to calculate derivative using the product rule, the quotient rule, the chain rule, implicit differentiation.
3. You need to be able to state and use the intermediate value theorem, Rolle's theorem, and the mean value theorem.
4. You need to be able to solve a related rates problem.
5. You need to be able to solve an optimization problem.
6. You need to be able to find noteworthy features of the graph of a function, including horizontal and vertical asymptotes, maxima and minima, inflection points, and intercepts.
7. You need to be able to use Newton's method to approximate roots. You also need to understand and be able to explain the geometry of Newton's method.
8. You need to be able to find antiderivatives.

Chapter 2 Review, page 123: # 27–31.

Chapter 3 Review, page 213: # 10, 11, 12a, 13–39, 57–67, 71, 72, 75–78.

Chapter 4 Review, page 309: # 1–9, 17–22, 29, 33, 34, 38, 40, 49, 53–58.