

Midterm 2 Review Guide

The exam will cover Chapters 2.5-3.3, and of course require understanding of the preceding material (i.e. knowing the derivative rules is essential). As you can see, we've covered fewer sections but the material is more involved. The exam will be laid out as follows:

- 5 problems, totaling 60 points.
- One short answer/definition type problem
- 1 related rates problem
- 2 max/min/concavity type problems
- 1 problem involving material from Ch. 2

Some important topics that will be covered include but are not limited to:

- Implicit differentiation
- Related Rates (very important!)
- Critical numbers
- Increasing/decreasing functions
- Relative extrema and the first derivative test
- Absolute extrema and the Extreme Value theorem
- Concavity and the second derivative test

The problems will be a composite of homework-like problems, quiz-like problems, and some conceptual problems testing your understanding of the definitions. In order to study, I recommend:

- Make sure you are solid on the foundations: know how to use the derivative rules and take derivatives effectively and quickly! This way you can focus on the substance of the problem, rather than the mechanics of taking a derivative.
- Go over old homework and ask questions on the problems you do not understand.
- Look at problems in the book similar to homework problems.
- Quiz yourself (or have someone quiz you) on definitions and simple derivative problems; you'll be well off if you can do the simple problems quickly.
- Come to office hours/calculus room to get holes in our understanding fixed.