Math 160
Review Sheet for Exam I
Friday 10 February 2012

Preparing for the test: The best way to prepare for the test is to be sure you've mastered each of the assigned homework problems. (There is one additional item which will be mentioned in the review sheet. See the list of topics.)

Mastering a homework problem: If you can look at a homework problem that you have not looked at recently, and can easily solve it correctly using only pencil, paper, and what's in your head, then you've mastered that problem.

Will mastering 80% of the homework translate into an 80% on the exam? Probably not. In most cases, it unfortunately translates into something less. One explanation for this is that under pressure, everyone makes mistakes. So, if you wish to perform at a certain level on a test, you will need to prepare to a higher level beforehand. Another explanation is that the most challenging homework problems are often about the most important concepts. In other words, if you are having trouble with 20% of the homework, it could be the case that you are having trouble with a much larger portion of the most important concepts.

Getting help: You are welcome to ask me any questions. I'm happy to help. You may also take advantage of the Math Department tutors in Arter Hall, Room B11. Your book and class notes are also good resources.

Extra problems: I have given practice exams and extra problems to calculus classes in the past, but students inevitably misinterpret their importance by thinking that mastering the practice problems is the best way to prepare for a test. Unfortunately, this leads to bad test scores and surprised students. Your focus should be on mastering each of the assigned homework problems.

The exam covers sections 1.1-1.3, 1.5-1.6, 1.8, 2.1-2.2, 3.4, and App. D. The specific topics:

1. Domain of a function, vertical line test, linear functions, graphing using transformations, composition of functions, piecewise defined functions. (1.1-1.3)

2. Trig examples using "useful triangles". (App. D)

3. Different types of limits, including one-sided limits, infinite limits, and limits at infinity. Calculating limits using Limit Laws. Squeeze Theorem. (1.5, 1.6, 3.4)

4. Continuity and types of discontinuities, Intermediate Value Theorem. I will ask you to give the precise statement of the Intermediate Value Theorem. (1.8)

5. Computing f' using the definition of derivative. Equation of tangent line. (2.1, 2.2)