Math 140 - Test #1 Study Guide

Fall 2016, Prof. Beydler

Test #1

- Date: Wednesday, September 28, 2016
- Will cover sections 1.5-1.6 and 2.1-2.6.
- You'll have the entire class to finish the test.
- No notes or books during the test. For this test, you'll need a **scientific calculator**.
- Please visit my office hours if you need help. If you don't understand something, don't be embarrassed to stop by—I'm very patient. If you can't make it to my office hours, then feel free to e-mail me with any questions: dbeydler@mtsac.edu Also, don't forget to visit the TMARC and get extra credit for doing so! (see syllabus for details)

Some of the stuff on the test:

- How to take limits (regular, left, and right) of various functions (in both graphical and algebraic forms). (1.5, 1.6)
- Know how to find discontinuities of a function. (1.6)
- There will be one problem where you'll have to use the definition of the derivative to find the derivative (2.1). Be sure it's lodged in your brain (you'll get a point for at least writing the definition down as shown below):
$$f'(x) = \lim_{h \to 0} \frac{f(x + h) - f(x)}{h}$$
- Know **how** take derivatives using the Constant, Power, Constant Multiple, Sum, Product, Quotient, and Chain rules. Just as important, know **when** to use these rules (this part takes practice). (2.2, 2.3, 2.4)
- There will be a marginal analysis word problem. (2.5)
- Know how to find $\frac{dy}{dx}$ using implicit differentiation. (2.6)
- There will be a related rates problem from 2.6.

Extra Credit!

- If you write up the answers to all of the review exercises listed below, and hand them in at the test, you can earn up to 3% extra credit towards your test (depending on neatness and completeness)! These review exercises don't cover everything. Also, some of the exercises are tough, but hey, you've got to work for your extra credit! ☺
- Review exercises:
    - Chapter 1: p.92 #19-29 odd, 33, 35
    - Chapter 2: p.186 #1-19 odd, 23-31 odd, 39, 41, 55, 63