# Homework 11

Math 147 (section 510–511-512), Fall 2014

This homework is due on Thursday, November 13.

0. Read Sections 5.4 and 5.5. After reading these sections, you should be able to answer the following questions (which are *not* to be turned in).
   - Why is it important to find the domain of the function you want to optimize?
   - How do you evaluate a limit with indeterminate form $\infty - \infty$?
     (Read Examples 9 and 10 on page 250.)
1. Section 5.4 # 6, 10, 12, 14, 18
2. Section 5.5 # 8, 16, 26, 40, 44, 50
3. (These problems are *not* to be turned in!)
   (a) Section 5.4 # 3, 5, 7, 13, 21, 23, 27
   (b) Section 5.5 # 5, 7, 11, 17, 25, 29, 31, 33, 35, 37, 39, 45, 55, 61, 65
4. These problems, which are are *not* to be turned in, pertain to the *discriminant* introduced in class. You can review this topic on page 13 in your textbook.
   (a) Does $x^2 - 5x + 2 = 0$ have a real solution? Explain.
   (b) Does $x^2 - 2x + 5 = 0$ have a real solution? Explain.
   (c) Does $x^2 + 4 = 0$ have a real solution? Explain. (Some students got confused about this on the exam.)
   (d) Is $f(x) = x^2 - 6x + 1$ always positive? Explain.
   (e) Is $f(x) = -x^2 + x + 6$ always negative? Explain.