Calculus II
Homework Eight
Due May 22, 2015

Chapter 9.1:

1. 2
2. 4
3. 8
4. 10
5. 14
6. 20–28, even only
7. 56 (Optional, but recommended for Fibonacci enthusiasts)

Chapter 9.2:

1. 11
2. 12
3. 18
4. 20
5. 31

Normal Distributions

1. The height of giraffes is distributed according to a normal distribution with a mean of 5.2 and a standard deviation of 0.6.

   (a) What fraction of giraffes are less than 4 meters tall?
   (b) What fraction of giraffes are between 5 and 6 meters tall?
   (c) What fraction of giraffes are more than 5.5 meters tall?

   Answer these questions two ways:

   - Using WolframAlpha to evaluate the integrals. You do not need to show printouts from wolfram alpha, but you should write down the integrals that you are asking wolfram alpha to solve for you.
   - Converting to z and using a z-table. See, e.g., `www.stat.ufl.edu/~athienit/Tables/Ztable.pdf`. Briefly explain how you used the z table to answer each of the questions.

2. Sarah Luke is interested in the heights of COA students compared to Hampshire students. A careful study reveals that COA students have an average height of 63 inches and a standard deviation of 4 inches. Sarah then sends a team of RAs on a trip to Massachusetts to measure the heights of some Hampshire students. The RA team manages to convince 25 Hampshire students to be measured. The mean of these 25 Hampshire students is 66 inches.

    (a) What is the null hypothesis?
    (b) What is the p-value?
    (c) Should you reject the null? Do you think it is likely that the average heights of Hampshire and and COA students are the same?

3. Repeat the above question, but suppose that the RAs measured 100 Hampshire students and found an average height of 66 inches.