[1.] Sidebottom Problem 2.2
[2.] Sidebottom Problem 2.3
[3.] Sidebottom Problem 6.2
[4.] Sidebottom Problem 6.4

The problems below are numeric. I will be available in the computer lab, room 106, Wednesday 10:00 am - noon to help with these problems, or with general background on writing C programs, compiling them, etc.

[5.] We will do problems this quarter (and in 140B) which involve (pseudo-) random numbers. Write a program which computes the first 5 "moments"

\[ \langle r^n \rangle = \frac{1}{N} \sum_{i=1}^{N} r_i^n \]

of random numbers \( r_i \) which are uniformly distributed on \((0,1)\). If you are programming in C, you can pretty easily modify the program on the course website which prints out 20 random numbers to compute the moments. (You should make \( N \) much larger than 20, though, to get good statistics.) From your results, what is your conjecture for a formula for \( \langle r^n \rangle \)? Can you prove it?

[6.] Generate pairs of random numbers which are uniformly distributed on \((0,1)\) and plot them. What does the result look like? (This is a nice visual test of your random number generator.)