Homework 4

Math 262

recommended completion date: Monday, October 10

You should do these problems for your own practice, but *your solutions will not be collected or graded*. Solutions are posted on Moodle so you can check your own work.

Book Problems

- Section 2.3 #47 (page 94)
- Section 2.4 #49, 50, 52, 58, 66, 71 (pages 102–106)
- Section 2.5 #75, 77 (pages 111–112)

Additional Problems

1. A total of n independent tosses of a coin that lands on heads with probability p are made. How large need n be so that the probability of obtaining at least one head is at least $\frac{1}{2}$? (The answer depends on p, of course.)
2. A pair of dice is rolled until a sum of either 5 or 7 appears. Find the probability that 5 occurs first. *Hint*: One way to do this is to let E_n be the event that a 5 occurs on the n^{th} roll and no 5 or 7 occurs on the first $n-1$ rolls. Compute $P(E_n)$ and argue that $\sum_{n=1}^{\infty} P(E_n)$ is the desired probability.