Homework 3

Due April 16, 2014

Please make sure to explain your answers to each of the following questions. Remember: a correct numerical answer without explanation is worth no points! Write up your answers legibly and logically. The not-to-turn-in problems provide additional practice and are important to preparing for exams.

1. Let X be a uniformly random number between 1 and 6 (a die roll) and Y a uniformly random number between 1 and X. Find the joint distribution for (X, Y) and the marginal distribution for Y.

2. We take turns rolling a 6-sided die until one of us obtains a 6. I roll first.

   (a) Given the first roll isn't a 6, what is the probability we take at least 4 rolls?

   (b) What is the probability that I win?

   (c) What is the probability you win on your first roll (the second overall), given that you win?

3. Section 4.1 Exercise 18

4. Section 4.1 Exercise 19

5. Section 4.1 Exercise 22

6. Section 4.1 Exercise 34

7. Section 4.1 Exercise 63. Hint: It's important to keep distinguish between the doors that can be revealed.

Problems **not** to turn in (Items with * go beyond practice):

1. Section 4.1 Exercise 6

2. Section 4.1 Exercise 22

3. Section 4.1 Exercise 29

4. Section 4.1 Exercise 23

5. (*) Section 4.1 Exercise 28

6. (*) Section 4.1 Exercise 30