Recitation 4
September 20, 2011

1. Problem 1.50, page 67 in the text.

   The birthday problem. Consider n people who are attending a party. We assume that every person has an equal probability of being born on any day during the year, independently of everyone else, and ignore the additional complication presented by leap years (i.e., nobody is born on February 29). What is the probability that each person has a distinct birthday?

2. Eight rooks are placed randomly in distinct squares of an 8×8 chessboard, with all possible placements equally likely. Find the probability that all the rooks are safe from one another, i.e., that there is no row or column with more than one rook.

3. Problem 1.61, page 69 in the text.

   Hypergeometric probabilities. An urn contains n balls, out of which exactly m are red. We select k of the balls at random, without replacement (i.e., selected balls are not put back into the urn before the next selection). What is the probability that i of the selected balls are red?