

Homework 2 - Due September 26, 2012

1. Complete Problem 3 in Probability Online. You are given the file `coinTosses.m`, which contains the code to generate a vector of n coin flips. Update this file (see the question and comments in the file for more direction) and upload your code. You do not need to hand in anything on paper for this question.
2. Complete **either** Problem 2 (Galileo) **or** Problem 4 (Roulette) in Probability Online — your choice. Again, you only need to upload your code. Remember that you can check your answers by clicking on "Answer."
3. (Section 3.2, Problem 22) How many ways can six indistinguishable letters be put in three mailboxes? *Hint*: One representation of this is given by a sequence $|LL|L|LLL|$ where the $|$'s represent the partitions for the boxes and the L's represent the letters. Any possible way can be so described. Note that we need two bars at the ends and the remaining two bars and the six L's can be put in any order.
4. (Section 3.2, Problem 20) A six-card hand is dealt from an ordinary deck of cards. Find the probability that:
 - (a) All six cards are hearts.
 - (b) There are three aces, two kings, and one queen.
 - (c) There are three cards of one suit and three of another suit.
5. (Section 3.2, Problem 6) Charles claims that he can distinguish between beer and ale 75 percent of the time. Ruth bets that he cannot and, in fact, just guesses. To settle this a bet is made: Charles is to be given ten small glasses, each having been filled with beer or ale, chosen by tossing a fair coin. He wins the bet if he gets seven or more correct. Find the probability that Charles wins if he has the ability that he claims. Find the probability that Ruth wins if Charles is guessing.
- 6 Which of the following is the most likely? (For this problem, you should compute the probability of each and compare them.)
 - (a) When you roll 6 dice, you get *at least* one 6.
 - (b) When you roll 12 dice, you get *at least* two 6's.
 - (c) When you roll 18 dice, you get *at least* three 6's.

Practice problems NOT to turn in: 3.1.13(b), 3.1.14, 3.1.17, 3.2.3, 3.2.10, 3.2.12(a,b,f), 3.2.23, 3.2.39