

## SDS 321 Worksheet 4

1. Suppose an individual applying to a college determines that he has an 80% chance of being accepted, and he knows that dormitory housing will only be provided for 60% of all of the accepted students. What is the probability of the student being accepted and receiving dormitory housing.
2. Consider the college applicant who has determined that he has 0.80 probability of acceptance and that only 60% of the accepted students will receive dormitory housing. Of the accepted students who receive dormitory housing, 80% will have at least one roommate. What is the probability of being accepted and receiving dormitory housing and having no roommates?
3. For an assessment, I plan to give an oral exam. I prepare 20 cards with 3 questions each, one for each of 20 students who will randomly choose a card without replacement. By answering all 3 questions from an examination card drawn at random you will earn an A. For you, there are 8 favorable cards for which you can answer all 3 questions. What is the probability you get an A, if:
  - a) You are the first to draw the card?
  - b) You are the second to draw the card?
  - c) You are the third to draw the card?
  - d) Suppose you are the last student to go. What is your probability of getting an A if you have no information on what cards the previous 19 students picked?
4. Out of 100 coins one has heads on both sides. One coin is chosen at random and flipped two times. What is the probability to get
  - a) Two heads?
  - b) Two tails?