Homework 3: Due Wednesday, April 23

Section 4.1: #6, 22, 24, 34, 46, 52, 54

Section 4.2: #2, 8

Problem: Suppose that you are playing poker with a a friend. Each of you is dealt five cards at random from one deck (so you can not both have the same card). You happen to get dealt a flush, and you want to know whether your friend is more or less likely to have a flush based on this information. Thus, we let E be the event "You have a flush" and let F be the event "Your friend has a flush". Calculate $P(F|E)$. How does this value compare to $P(F)$? Are E and F independent events?

Problem: The game of Spades consists of 2 team with 2 players each. In one round, the 52 cards are dealt so that each player gets 13 cards. Let X be the random variable which gives the number of spades that you have. Let Y be the random variable which gives the number of spades that your partner has. Calculate $P(X = 2, Y = 4)$ (this is one value of the joint distribution of X and Y). Are X and Y independent random variables?