Math 1124

Homework #6

1. In the game "King's Men", you draw cards *without replacement* from a standard 52-card deck. You can draw up to 3 times. If you get two kings, you stop drawing because you have won a fabulous cruise in the Caribbean. If you end up with one king, you win a consolation prize of a fabulous cruise down the Olentangy River.
    a. Draw a tree diagram for the game. (Consider that on each draw, you either get a king or you don't.)

On each of the following parts, find the probability of the given event:

   b. You win the grand prize by drawing a king on the first draw and a king on the 3rd draw.
   c. You win the grand prize in exactly 3 draws.
   d. You win the consolation prize.
   e. You win a prize.
   f. You lose.

2. a. Herman says that if you pick a United States citizen at random, the probability of selecting a citizen from Indiana is $\frac{1}{50}$ because Indiana is one of 50 equally likely states to be selected. Is Herman correct? Why or why not?

   b. Jerry has set up a game in which one wins a prize if he/she selects an orange chip from a bag. There are two bags to choose from. One has 2 orange and 4 green chips. The other bag has 7 orange and 7 green chips. Jerry argues that you have a better chance of winning by drawing from the second bag because there are more orange chips in it. Is Jerry correct? Why or why not?

   c. Gil the Gambler says there is the same probability of getting 6 heads out of 10 flips of a fair coin as there is of getting 3 heads out of 5 flips of the coin because 3/5 = 6/10. Is Gil right or wrong and why?