ECE 341 - Homework #2

Card Games.

The card game *bridge* uses a 52-card deck. Each person is dealt 13 cards for their hand.

1) How many different hands are possible? (order doesn't matter)

2) What is the probability of having 9 cards of one suit in your hand?

3) What is the probability of having no points (no Jacks, Queens, Kings, or Aces)?

In 4-card poker, you're dealt just 4 cards

4) Compute the odds of 2-pair in 4-card poker

    hand = xx yy

5) Compute the odds being dealt one-pair

    hand = xx y z

6) Determine the odds of a 2-pair and 1-pair using Matlab and a Monte-Carlo simulation and 1 million hands of 4-card poker

Conditional Probability in 4-Card Poker

7) Compute the probability of getting 4-of-a-kind if there is a single draw step
   - If you are dealt 4-of-a-kind, draw no cards   hand = xxxx   draw 0
   - If you are dealt 3-of-a-king, draw one card   hand = xxxy   discard y, draw 1
   - If you are dealt 2-pair or 2-of-a-kind, draw 2 cards   hand = xxyz   discard yz, draw 2
   - If you are dealt no pairs, draw 3 cards.   hand = xyzt   discard yzt, draw 3

8) Check your answers using a Monte Carlo simulation with 1 million hands of 4-card draw poker