Math 180 **Handout** #3
Playing Cards

Suppose you are given a standard deck of playing cards. (52 cards, labelled $2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K, A$, one each for the suits: Hearts, Diamonds, Spades, and Clubs.) Consider the experiment of drawing a card at random. (After looking at the card, you put it back in the deck, and shuffle, so the same experiment can be repeated again.)

1. Find an efficient way of illustrating what the sample space looks like, without writing down all 52 outcomes.

2. Let A be the event that the card you draw is a 4. What is $P(A)$?

3. Let B be the event that the card you draw is a club. What is $P(B)$?

4. Describe the event $A \cap B$ and compute its probability. Are A and B mutually exclusive?

5. Describe the event $A \cup B$, and compute its probability.