CC2 Probability

1. A coin and a die are tossed. Calculate the probability of getting heads and a number less than 5.
2. What is the probability of drawing 2 red cards one after the other from a standard deck of cards *without replacement*?
3. A card is randomly selected from a standard deck of 52 cards. What is the probability that is it an ace or a heart?
4. **One** card is randomly selected from a standard deck of 52 cards. What is the probability of getting heart and face card?
5. Given A = {1, 3, 6, 8, 9} and B = { odd numbers less than 10}
   1. Draw a Venn Diagram of Set A and set B.
   2. What is AB?
   3. What is AB?
6. In a class there are 18 boys and 12 girls. If the teacher wants to pick a 4 person group, how many ways could the group consist of:
   1. All boys b. All girls c. 2 boys and 2 girls

d. 3 boys and 1 girl e. At least 2 girls f. At least 2 boys

1. How many ways can the letters of the following word be arranged:
   1. PROBABILITY b. PHONE c. BOOKCASES d. MISSISSIPPI
2. A lottery has you pick 4 numbers from the number 1 – 45 without repeating any.
   1. Is this a combination or permutation?
   2. How many possible tickets can you make?
   3. What is the probability that you will buy one ticket and it will win the jackpot?
   4. If you get $1000 for matching 4 numbers, what is the probability that you will win $1000?
3. A bag of marbles has 3 white, 4black, 5 green and 2 red. What is the probability that:
   1. You pick one marble that is red or white?
   2. You pick one marble that is not green?
   3. You pick one marble that is blue?
   4. You pick 2 marbles without replacing and the 1st one is red and the 2nd one is green?
   5. You pick 3 marbles at once and they are all green?
   6. You pick 2 marbles at once; the 1st is black or white and the 2nd is red or green?
4. There are 550 students in the freshman class. This semester there are 120 that are taking Math 2 and 180 that are taking English 1.
   1. Draw a Venn Diagram.
   2. What is the probability that a student is picket that is taking neither Math 2 nor English?
   3. What is the probability that a student picked is only Math 2?