Worksheet 01

1. Write down all of the possible outcomes of flipping a coin three times. Use H for heads and T for tails. What is the probability that all of the flips have the same result (in other words, 3 heads or 3 tails)?

2. A standard deck of cards has 52 cards with 4 suits. In poker, 5 cards are dealt to each player.[1] A flush occurs when all of a player's cards are of the same suit. What is the probability that a player will be dealt a flush? Note: you can leave this unsimplified.

[1] For the purposes of this class, by poker I mean the most basic 5-card variant with no bidding, discarding, or any other manipulation of your original hand.

3. Re-write your previous solution using only factorials.

4. Using the 26 letters in the latin alphabet, how many two-letter 'words' can you construct? These do not need to be actual words; just count the unique combinations.

5. How many combinations are there if every word needs a vowel (a,e,i,o,u)? How many combinations are there if we also allow words that end in y (like 'my')?

6. How many 'words' are there if we have three letters, without any vowel restrictions? How about four letters? What about words of length k?

Don't forget to fill out the worksheet form before the next class!