Probability Continued

- Simulation
- Counting

Simulation and the TI 83/84

1. Select Math then PRB then randInt.
2. Enter the minimum,maximum,number of numbers desired.
3. Enter STO then L1 (second 1) then Enter.
4. You now have data in a list. Now you can run stats on it as before.

Fundamental Counting Rule

For a sequence of 2 events in which the first can occur in *m* ways and the second in *n* ways, the events together can occur in a total of *m* x *n* ways.

- **Example:** If you pick a card from a 52 card deck then roll a 6 sided die, there are 52 x 6 = 312 possible outcomes.

Combination

The number of ways of selecting r items out of a total of n items to choose from given that the order of the items is not taken into account is

$$_nC_r = \frac{n!}{(n-r)!\,r!}$$

For the TI 83/84, to find the number of ways of selecting 5 items out of a total of 8 items, type in 8 then Math -> PRB -> nCr then 5 then ENTER.

The California Lottery

- To play the California Lottery, pick 5 numbers from 1 to 56 and one number from 1 to 46. You win $51,000,000 if your numbers are selected.

- What is the probability of winning the lottery with one ticket?

Royal Flush in 5 Card Stud

- The game of 5 Card Stud involves the player getting 5 cards. A Royal Flush means that the player gets Ace, King, Queen, Jack, Ten of the same suit in any order. Find the probability of getting a Royal Flush in 5 Card Stud.