Stat 1040
Quiz 6, Fall 2014

Name_____
Recitation Instructor_____

1. There are 25 students in a class.

a) How many ways can you select a committee of size 5? (2 points)

$$\binom{25}{5} = \frac{25!}{5!\,20!}$$

b) If John and Mary are in the class and are willing to serve on the committee but only if they are together, how many ways can you select a committee of size 5? (2 points)

John + Mary on: $\binom{23}{3}$

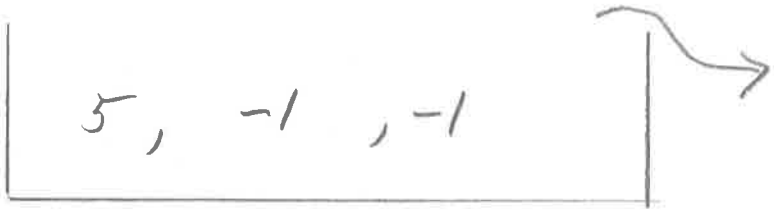
John + Mary off: $\binom{23}{5}$

$$\binom{23}{3} + \binom{23}{5}$$

2. You play a game in which you win \$1 if the percentage of heads (fair coin) is less than 60%. Which is better for you, 100 tosses or 1000 tosses? (2 points)

With more tosses the % is more likely to be near 50%.

3. A biased coin has probability 1/3 of *heads* when tossed. Suppose you toss this coin 400 times and when it comes up *heads* you get \$5 but when it comes up *tails* you lose \$1. Build a box model for the total amount you win in this game. (4 points)



Draw 400 + consider the sum of the draws.