Math 1116, Quiz #15, Spring 2013 Name KEY

**Instructions**: Show all work. Give exact answers whenever possible.

1. How many ways can you pull a Jack followed by a diamond from a standard deck of cards?

$4 * 13 - 1 = 51$

Jacks $\diamondsuit$'s $- J * \diamondsuit$

2. Suppose there are three red marbles, 2 blue marbles, 6 white marbles and 5 green ones. How many ways can you choose a red and green and blue marble in that order?

$3 * 5 * 2 = 30$

3. Motorcycle plates in Ohio have 5 characters that allow for letters (but not O) and any numerical digit. How many motorcycle plates are possible?

$(25)^5 = 9,765,625$

4. How many ways can I choose a quarterback, a tailback and a receiver from a list of 9 players?

$9nPr3 = 9 * 8 * 7 = 504$

$9P3$

5. How many ways are there to give away 5 identical raffle prizes if 32 people are competing for them?

$32nCr5 = 201,376$

$32C5$

6. Suppose I flip a fair coin 10 times. How many ways are there to get 4 heads? What is the probability of getting 4 heads?

$10C4 = 210$

$\frac{210}{2^{10} = 1024} = \frac{105}{512} \approx .205..$