Math 1116, Quiz #10, Fall 2014 Name KEY

Instructions: Show all work. Answer each question as completely as possible. Use exact values. For counting problems you may use scientific notation (with three significant figures) for any numbers larger than a million.

1. What is the probability of flipped a coin ten times and getting exactly 5 heads? [Hint: it's not 50%.]

$$\binom{10}{5}\left(\frac{1}{2}\right)^{10} = .246$$

2. What is the probability of **dr**aw three-of-a-kind in a 5-card poker hand?

$$\frac{13\binom{4}{3}\binom{48}{2}}{\binom{52}{5}} = .022569 = \frac{52\cdot 3\cdot 2\cdot 48\cdot 47}{52P5}$$

3. What is the probability of rolling a sum of 4 or 6 on a pair of 6-sided dice?

ways to get a 4 = 3 (1,3)(3,1),(2,2)
ways to get a 6 = 5 (1,5)(5,1),(4,2),(2,4),(3,3)
8

$$\frac{8}{36} = .222$$

4. What is the probability of **wi**nning a raffle with 200 tickets sold, and 4 door prizes?

$$\frac{4}{\binom{200}{4}} = 6.1838\times10^{-8}$$

5. What is the probability of having 3 girls in 4 children?

$$\frac{\binom{4}{3}}{16} = \frac{4}{16} = \frac{1}{4} = .25$$