Math 1116, Quiz #3, 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. A math department has 35 full-time faculty and they need to choose a six-member advisory committee. How many different committees can be formed?

$$35C6 = \binom{35}{6} = 1{,}623{,}160$$

2. An on exam, students are required to answer four essays from nine possible choices. How many different combinations of essays could students do?

$$\binom{9}{4} = 9C4 = 126$$

3. A bowl of marbles contains 130 marbles. How many ways are there to choose 5 marbles from the bowl?

$$130C5 = \binom{130}{5} = 286{,}243{,}776$$

4. A poker hand of seven cards is drawn from a standard deck. How many different seven-card poker hands are possible?

$$52C7 = \binom{52}{7} = 133{,}784{,}560$$

5. Suppose your mp3 player has 40 songs on it. You choose 8 songs to listen to on a trip. If order doesn't matter, how many different combinations of songs could you choose?

$$40C8 = \binom{40}{8} = 76{,}904{,}685$$

6. If you flip a coin seven times, how many different combinations of heads and tails are possible is there are 4 heads?

$$7C4 = \binom{7}{4} = 35$$