Math 1116, Quiz #2, 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. How many ways are there to elect a president, vice president, treasurer and secretary from a committee of 25 people?

$$25P4 = 303,600$$

2. You and six other friends are standing in line. How many total orders are there to stand in line?

$$7P7 = 7! = 5040$$

3. A raffle has 5 top prizes, all different. If 250 tickets are sold, how many different ways are there to give out the top five prizes?

$$250P5 = 9.38 \times 10^{11}$$

4. A football team with 14 players with 11 positions on the field. How many ways can those positions be chosen?

$$14P11 = 1.45 \times 10^{10}$$

5. Suppose that you are rearranging the letters of the word "catholic" to make a puzzle. How many different ways can the letters be rearranged?

$$8P8 = 8! = 40,320$$