MAT 223, Paper Quiz #5, Spring 2017 Name KEY

Instructions: Show all work. Use exact answers unless specifically asked to round. Explain thoroughly using complete sentences.

1. Maryland license plates allow one number, followed by two letters, and then followed by 4 numbers. How many license plates of that design are possible?

$10 \cdot 26 \cdot 26 \cdot 10 \cdot 10 \cdot 10 \cdot 10 = 10^5 26^2 = 67{,}600{,}000$

2. Of the 38 teachers at the local elementary school, 5 are selected to be representatives to the county school board. How many different ways can the five be selected?

$38C5 = 501{,}942$

3. Twelve children are running a foot race where 1st through 4th place prizes are awarded. How many different ways can those prizes be awarded?

$12P4 = 11{,}880$

4. SESQUEPEDALIAN is a long words that means "characterized by long words". How many different ways can the letters of this word be rearranged to form a word scramble puzzle?

$$\frac{14!}{2!\,3!\,2!} = 3{,}632{,}428{,}800$$

5. What is the probability of selecting a pair of kings and any other pair in a 5-card poker hand drawn from a standard deck?

$$\frac{\binom{4}{2}12\binom{4}{2}44}{\binom{52}{5}} = .00731\ldots$$