

Math 110
Quiz 5
Summer 2007

Justify all answers with neat and organized work. Clearly indicate your answers.
25 points possible.

$${}_nP_r = \frac{n!}{(n-r)!}$$

1. (9 pts.) Submit your take-home Excel problems.

2. (2 pts.) Compute each expression.

(a) $\frac{7!}{(7-3)!}$

(b) ${}_9P_4$

3. (2 pts.) A popular brand of pen is available in four colors (red, green, black, or blue), and three writing tips (bold, medium, or fine). How many different choices of pens do you have with this brand?

4. (2 pts.) A person can order a new car with a choice of seven possible colors, with or without air conditioning, with or without automatic transmission, with or without power windows, with or without antilock brakes, and with or without a sunroof. In how many different ways can a new car be ordered with regard to these options?

5. (2 pts.) You are taking a multiple-choice test that has six questions. Each of the questions has four answer choices, with one correct answer per question. If you select one of these four choices for each question and leave nothing blank, in how many ways can you answer the questions?

6. (2 pts.) A stock can go up, go down, or stay unchanged. How many possibilities are there if you own nine stocks?

7. (2 pts.) You need to arrange nine of your favorite books along a small shelf. How many different ways can you arrange the books, assuming that the order of the books makes a difference to you?

8. (2 pts.) For a segment of a radio show, a disc jockey can play 8 records. If there are 15 records to select from, in how many ways can the program for this segment be arranged?

9. (2 pts.) In how many distinct ways can the letters of the word ABRACADABRA be arranged?