

The Counting Principle

For dinner, Wanda can choose from 2 proteins (beans and fish), 4 vegetables (peas, broccoli, carrots, and corn), and 2 breads (rolls or biscuits). How many different protein-vegetable-bread selections can she make for dinner?

$$2 \text{ Proteins} \times 4 \text{ Vegetables} \times 2 \text{ Breads} = 16$$

So, Marsha can choose from 16 selections.

Remember: The Counting Principle is easy! Simply MULTIPLY the number of choices from each category.

- 1) How many outcomes are there when rolling a die and flipping a coin?
- 2) 29 people are in your class of which 17 are males. How many ways can you elect 1 male and 1 female representative?
- 3) If a license plate consists of 3 letters followed by 3 numbers, how many license plates can be created without duplication?
- 4) At Joe's restaurant,, you have a choice of 2 appetizers to start you off, followed by 3 main entrees and a pick of 6 different desserts. How many ways can you order 1 appetizer, 1 entree, and 1 dessert?
- 5) Cassandra has a blue, a red and a purple dress. She also has black shoes, red shoes, green shoes and yellow shoes. What is the probability that she will pick the blue dress with yellow shoes?

- 6) If ice cream sundaes come in 5 flavors with 4 possible toppings, how many different sundaes can be made with one flavor of ice cream and one topping?
- 7) One quarter, one dime and one six-sided die are tossed. How many results are possible? What are the chances that the first toss will be a heads(quarter), tails(dime), and a number 3(die).
- 8) A sporting goods store sells 9 different styles of running shoes, each available in 2 colors. How many combinations of color and style are there?
- 9) A witness to a holdup reports that the license of the getaway car consisted of 6 different digits. He remembers the first three but has forgotten the remainder. How many licenses do the police have to check?
- 10) You have 5 shirts, 6 pairs of slacks, and 4 pairs of shoes. Assuming that everything is clean, how many ways can you select clothing to wear to school?