NAME _____ DATE _____ PERIOD _____

Worksheet 9-5 – Math 7
Fundamental Counting Principle

Use the Fundamental Counting Principle to find the total number of outcomes in each situation.

1. choosing from 8 car models, 5 exterior paint colors, and 2 interior Colors

2. selecting a year in the last decade and a month of the year

3. picking from 3 theme parks and 1-day, 2-day, 3-day, and 5-day passes

4. choosing a meat and cheese sandwich from the list shown in the table

Cheese	Meat
Provolone	Salami
Swiss	Turkey
American	Tuna
Cheddar	Ham

5. tossing a coin and rolling 3 number cubes

6. selecting coffee in regular or decaf, with or without cream, and with or without sweeteners

7 COINS Find the number of possible outcomes if 2 quarters, 4 dimes, and 1 nickel are tossed.

8. SOCIAL SECURITY Find the number of possible 9-digit social security numbers if the digits may be repeated.

Reteach 9-5 – Math 7

Fundamental Counting Principle

If event *M* can occur in *m* ways and is followed by event *N* that can occur in *n* ways, then the event *M* followed by *N* can occur in *m* × *n* ways. This is called the **Fundamental Counting Principle.**

Example
CLOTHING Andy has 5 shirts, 3 pairs of pants, and 6 pairs of socks. How many different outfits can Andy choose with a shirt, pair of pants, and pair of socks?

Number of shirts		number of pants		number of pairs socks		total number of outfits
5	•	3	•	6	=	90

Andy can choose 90 different outfits.

Exercises
Use the Fundamental Counting Principle to find the total number of outcomes in each situation.

 1. rolling two number cubes

 2. tossing 3 coins

 3. picking one consonant and one vowel

 4. choosing one of 3 processor speeds, 2 sizes of memory, and 4 sizes of hard drive

 5. choosing a 4-, 6-, or 8-cylinder engine and 2- or 4-wheel drive

 6. rolling 2 number cubes and tossing 2 coins

 7. choosing a color from 4 colors and a whole number from 4 to 10