Math 7 Test **Name: _____**

SOL 7.10—Fundamental Counting Principle/Compound Events

1. Create a situation in which you use the Fundamental Counting Principle to find the total number of possible outcomes with 4 choices for the first event, 2 choices for the second event, and 3 choices for the third event. (Hint: Sandwiches, clothing, ice cream, spinners, etc.) Write an equation to find the total number of outcomes possible.

First event	Second event	Third event

 # outcomes _____

2. Use the Fundamental Counting Principle to find the total number of possible outcomes when ordering a birthday cake if one choice must be made from each event: white, chocolate, or yellow cake; crème or strawberry filling; white or buttercream frosting; $\frac{1}{4}$, $\frac{1}{2}$, or full sheet cake.

_____

3. The order form for purchasing school apparel allows you to select a short-sleeved t-shirt, long-sleeved t-shirt, or sweatshirt in the sizes small, medium, large, or extra large, and the colors orange or maroon. How many different choices of shirts are possible? Show work.

_____

Your wallet contains the following bills: three $20 bills, one $10 bill, four $5 bills, and two $1 bills. Assume all pulls are random and the bill is replaced before each new pull. Show work.

4. Find the probability of pulling a $5 and then a $1. _____

5. Find the probability of pulling a $20 bill and then NOT pulling a $10.

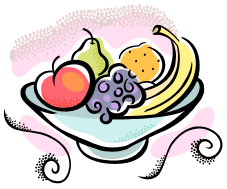
_____

6. There are 2 blue, 5 red, 1 orange, and 2 green pencils in a jar on the teacher's desk. Students randomly choose a pencil from the jar and DO NOT replace it. What is the probability one student chooses an orange pencil and the next student chooses a blue pencil? Show work.

_____

The table presents data on choices of snack foods for a group of students at computer camp. Use the data in the table to answer questions 7 and 8.

Snack	Number of Students
Fruit	8
Granola	2
Pretzels	4
Chips	6
Carrots	4



7. What is the probability that one student chooses fruit and another chooses chips?

_____

8. What is the probability that one student chooses carrots, it is not replaced, and the next student chooses granola?

_____

9. You have 3 pairs of pants and 3 different colored shirts that you can wear to school. Circle the letter for the correct tree diagram for this situation.

A.

Pants	Shirts
Tan	Yellow
	Green
	Orange
Blue	Yellow
	Green
	Orange
Black	Yellow
	Green
	Orange

B.

Pants	Shirts
Tan	Yellow
	Green
	Orange
Blue	Yellow
	Green
	Orange

C.

Pants	Shirts
Tan	Yellow
	Green
Blue	Yellow
	Green
Black	Yellow
	Green

D.

Pants	Shirts
Tan	Yellow
	Green
Blue	Orange
	Yellow
Black	Green
	Orange

10. Construct a tree diagram to show the outcomes for the sample space from picking a number from 1 to 4 and choosing a color red, green, or yellow. Give the total number of outcomes.

 # outcomes _____

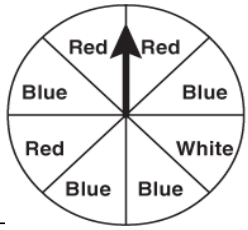
Suzanne was looking at the menu below for lunch at summer camp.

Main Dish	Sides	Drinks
Hamburger Hot Dog Pizza	Fries Chips	Soft Drink Juice Milk

11. If Suzanne chooses only one item from each category, how many different combinations could she have for lunch? Show work.

_____

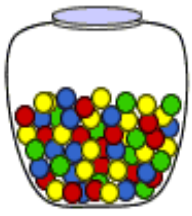
A number cube is rolled and the spinner is spun. Find each probability. Show work.



12. P(3 and red) _____

13. P(an even number and not blue) _____

There are 3 red marbles, 4 green marbles, 2 yellow marbles, and 5 blue marbles in a bag. Once a marble is drawn, it is not replaced. Find the probability of each outcome. Show work.



14) a blue then a green marble _____

15) a yellow then a red marble _____

16) two yellow marbles in a row _____

Math SOL 7.11—Fundamental Counting Principle/Compound Events
Answer Key

1. Answers may vary; 24
2. 3 x 2 x 2 x 3 = 36 outcomes
3. 3 x 4 x 2 = 24 outcomes
4. $\frac{2}{25}$
5. $\frac{2}{27}$
6. $\frac{1}{45}$
7. $\frac{56}{625}$
8. $\frac{1}{60}$
9. A
10. Answers may vary for tree diagram; 4 x 3 = 12 outcomes
11. 3 x 2 x 3 = 18 outcomes
12. $\frac{1}{16}$
13. $\frac{1}{4}$
14. $\frac{10}{91}$
15. $\frac{3}{91}$
16. $\frac{1}{91}$