

Discovering the Basic Counting Principle

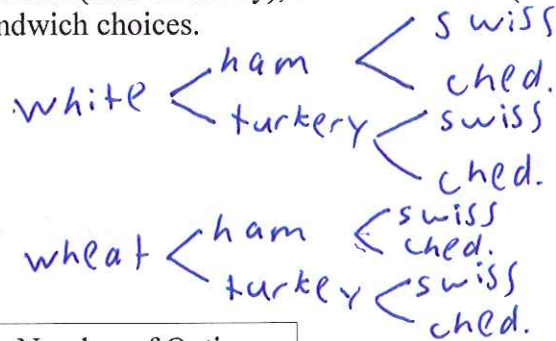
Name: Key

7th Grade Math

For each problem below...

- ✓ Create a tree diagram for the situation.
- ✓ Fill in the table based on your findings.
- ✓ Jot down any special observations that you notice about the table.

1. The school cafeteria sells sandwiches for which you can choose one item from each of the following categories: two breads (white or wheat), two meats (ham or turkey), and two cheeses (swiss or cheddar). Draw a tree diagram to find the number of sandwich choices.



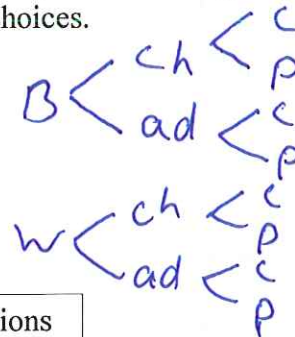
Complete the table for question one.

	Number of Options
Bread	2
Meat	2
Cheese	2
Total Possible Outcomes	8

Observations from the table...

$$2 \cdot 2 \cdot 2 = 8$$

2. A school team sells caps in two colors (blue or white), two sizes (child or adult), and two fabrics (cotton or polyester). Draw a tree diagram to find the number of cap choices.



Complete the table for question two.

	Number of Options
Color	2
Size	2
Fabric	2
Total Possible Outcomes	8

Observations from the table...

$$2 \cdot 2 \cdot 2 = 8$$

3. A model of car has 5 colors (red, blue, white, black, or green) and 2 types of engines (V6 or V8). Draw a tree diagram to represent the possible outcomes.



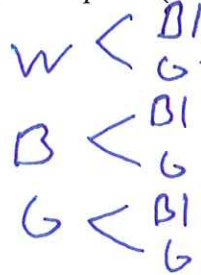
Complete the table for question three.

	Number of Options
Color	5
Engine	2
Total Possible Outcomes	10

Observations from the table...

$$5 \cdot 2 = 10$$

4. If Tom's closet has 3 shirts (white, black, or gray) and 2 pants (black or gray). Draw a tree diagram to represent the possible outcomes.



Complete the table for question four.

	Number or Options
Shirts	3
Pants	2
Total Possible Outcomes	6

Observations from the table...

$$3 \cdot 2 = 6$$

BASIC COUNTING PRINCIPLE:

$$\# \text{ of choices} \cdot \# \text{ of choices} = \text{Total Possible Outcomes.}$$