Worksheet 9-3 – Math 7

Probability of Compound Events

For each situation, find the sample space using a tree diagram.

  1. choosing blue, green, or yellow wall paint with white, beige, or gray curtains

  2. choosing a lunch consisting of a
    soup, salad, and sandwich from the
    menu shown in the table

Soup	Salad	Sandwich
Tortellini	Caesar	Roast Beef
Lentil	Macaroni	Ham
		Turkey

  3. GAME Kimiko and Miko are playing a game in which each girl rolls a number cube. If the sum of the numbers is a
    prime number, then Miko wins. Otherwise Kimiko wins. Find the sample space. Then determine whether the game is
    fair.

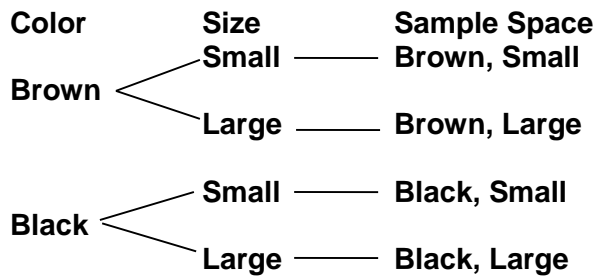| Sum = 2	Sum = 3	Sum = 4	Sum = 5	Sum = 6	Sum = 7	Sum = 8	Sum = 9	Sum = 10	Sum = 11	Sum = 12
1 + 1 = 2	2 + 1 = 3 1 + 2 = 3	1 + 3 = 4 2 + 2 = 4 3 + 1 = 4	1 + 4 = 5 2 + 3 = 5 3 + 2 = 5 4 + 1 = 5	1 + 5 = 6 2 + 4 = 6 3 + 3 = 6 4 + 2 = 6 5 + 1 = 6	1 + 6 = 7 2 + 5 = 7 3 + 4 = 7 4 + 3 = 7 5 + 2 = 7 6 + 1 = 7	2 + 6 = 8 3 + 5 = 8 4 + 4 = 8 5 + 3 = 8 6 + 2 = 8	3 + 6 = 9 4 + 5 = 9 5 + 4 = 9 6 + 3 = 9	4 + 6 = 10 5 + 5 = 10 6 + 4 = 10	5 + 6 = 11 6 + 5 = 11	6 + 6 = 12

Reteach 9-3 – Math 7

Probability of Compound Events

A **tree diagram** or table is used to show all of the possible outcomes, or **sample space**, in a probability experiment.

Example 1

WATCHES A certain type of watch comes in brown or black and in a small or large size. Find the number of color-size combinations that are possible.

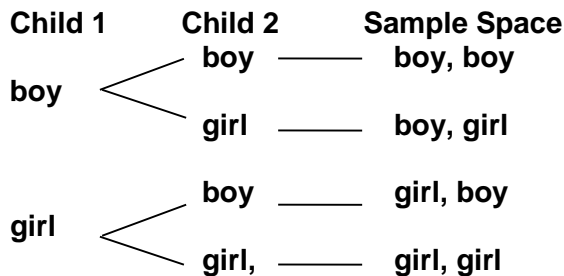Make a tree diagram to show the sample space. Then give the total number of outcomes.

Color	**Size**	**Sample Space**
Brown	**Small**	**Brown, Small**
	Large	**Brown, Large**
Black	**Small**	**Black, Small**
	Large	**Black, Large**

There are four different color and size combinations.

Example 2

CHILDREN The chance of having either a boy or a girl is 50%. What is the probability of the Smiths having two girls?

Make a tree diagram to show the sample space. Then find the probability of having two girls.

Child 1	**Child 2**	**Sample Space**
boy	**boy**	**boy, boy**
	girl	**boy, girl**
girl	**boy**	**girl, boy**
	girl,	**girl, girl**

The sample space contains 4 possible outcomes. Only 1 outcome has both children being girls. So, the probability of the Smiths having two girls is $\frac{1}{4}$.
.