

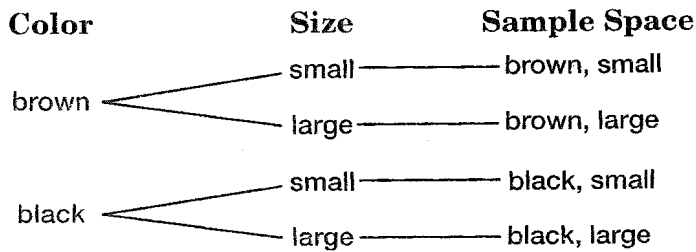
Study Guide and Intervention

Tree Diagrams

A game in which players of equal skill have an equal chance of winning is a **fair game**. A **tree diagram** 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.

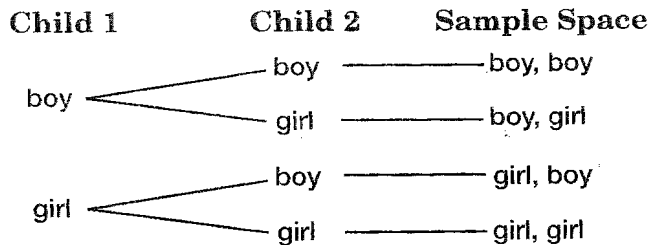
Make a tree diagram to show the sample space. Then give the total number of outcomes.



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 Smith's having two girls?

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



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

EXERCISES

For each situation, make a tree diagram to show the sample space. Then give the total number of outcomes.

- choosing an outfit from a green shirt, blue shirt, or a red shirt, and black pants or blue pants
- choosing a vowel from the word COUNTING and a consonant from the word PRIME

Tree Diagrams

1. **GASOLINE** Craig stops at a gas station to fill his gas tank. He must choose between full-service or self-service and between regular, midgrade, and premium gasoline. Draw a tree diagram showing the possible combinations of service and gasoline type. How many possible combinations are there?

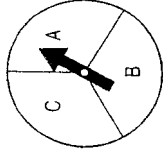
2. **COINS** Judy tosses a coin 4 times. Draw a tree diagram showing the possible outcomes. What is the probability of getting at least 2 tails?

3. **COINS** In Exercise 2, what is the probability of getting 2 heads, then 2 tails?

4. **EQUIPMENT** The computer accessory that Joanne is considering selling at her store comes in white, beige, gray, or black and as an optical mouse, mechanical mouse, or trackball. How many combinations of color and model must she stock in order to have at least one of every possible combination?

Tree Diagrams

The spinner at the right is spun twice.



1. Draw a tree diagram to represent the situation.
2. What is the probability of getting at least one A?

For each situation, make a tree diagram to show the sample space. Then give the total number of outcomes.

3. choosing a hamburger or hot dog and potato salad or macaroni salad

4. choosing a vowel from the word **COMPUTER** and a consonant from the word **BOOK**

5. choosing between the numbers 1, 2 or 3, and the colors blue, red, or green