

Study Guide and Intervention

6SDAP3.4, 6SDAP3.5

Compound Events

A **compound event** consists of two or more simple events. If the outcome of one event does not affect the outcome of a second event, the events are called **independent events**. The probability of two independent events can be found by multiplying the probability of the first event by the probability of the second event.

Example 1 A coin is tossed and a number cube is rolled. Find the probability of tossing tails and rolling a 5.

$$P(\text{tails}) = \frac{1}{2} \qquad P(5) = \frac{1}{6}$$

$$P(\text{tails and } 5) = \frac{1}{2} \cdot \frac{1}{6} \text{ or } \frac{1}{12}$$

So, the probability of tossing tails and rolling a 5 is $\frac{1}{12}$.

Example 2 **MARBLES** A bag contains 7 blue, 3 green, and 3 red marbles. If Agnes randomly draws two marbles from the bag, replacing the first before drawing the second, what is the probability of drawing a green and then a blue marble?

$$P(\text{green}) = \frac{3}{13} \qquad 13 \text{ marbles, } 3 \text{ are green}$$

$$P(\text{blue}) = \frac{7}{13} \qquad 13 \text{ marbles, } 7 \text{ are blue}$$

$$P(\text{green, then blue}) = \frac{3}{13} \cdot \frac{7}{13} = \frac{21}{169}$$

So, the probability that Agnes will draw a green, then a blue marble is $\frac{21}{169}$.

Exercises

- Find the probability of rolling a 2 and then an even number on two consecutive rolls of a number cube.
- A penny and a dime are tossed. What is the probability that the penny lands on heads and the dime lands on tails?
- Lazlo's sock drawer contains 8 blue and 5 black socks. If he randomly pulls out one sock, what is the probability that he picks a blue sock?