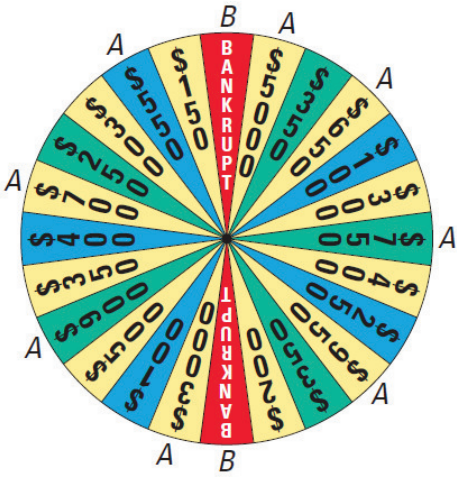
Probability of Independent Events

Probability of Independent Events	To find the probability of two independent evens both occurring, multiply the probability of the first even by the probability of the second event.	$P(A \text{ and } B) = P(A) \cdot P(B)$

You are playing a game that involves spinning the money wheel shown. During your turn you get to spin the wheel twice. What is the probability that you get more than \$500 on your first spin and then go bankrupt on your second spin?



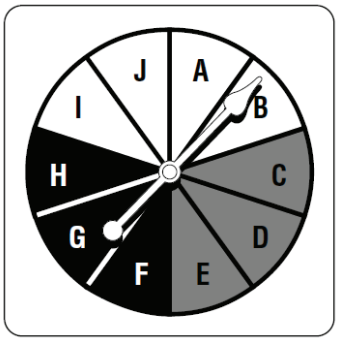
SOLUTION Let event A be getting more than \$500 on the first spin, and let event B be going bankrupt on the second spin. The two events are independent. So, the probability is:

$$P(A \text{ and } B) = P(A) \cdot P(B) = \frac{8}{24} \cdot \frac{2}{24} = \frac{1}{36} \approx 0.028$$

Try These

You are playing a game that requires you to spin the spinner twice. Find the probability of the given event in simplest fraction form.

1. Gray, then a vowel



2. Consonant, then black

3. Vowel, then white

4. A, then B

One number is selected from the list $\{2, 3, 4, 5\}$. Another number is selected from the list $\{2, 4, 6\}$. Find the probability of the given events.

5. The first number is odd and the second number is even

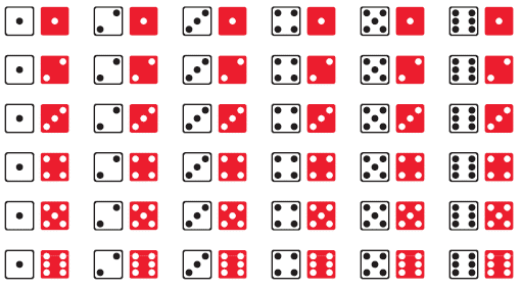
6. The two numbers are the same

7. The number from the first list is greater than the number from the second list

8. The sum of the two numbers is even

Two dice are thrown playing a game. Find the probability of the given events.

9. The sum of the dice is 7



10. Both dice show a number greater than 3

11. The sum of the dice is greater than 10

12. Both dice show the same number