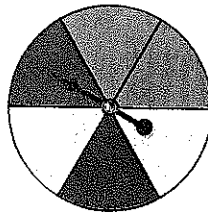


**GUIDED PRACTICE**

1. **Vocabulary** Give an example of an *event* that has two possible *outcomes*.

SEE EXAMPLE  
p. 713

- 1 Identify the sample space and the outcome shown for each experiment.  
 2. rolling a number cube      3. spinning a spinner      4. tossing 3 coins



SEE EXAMPLE  
p. 714

- 2 Write *impossible*, *unlikely*, *as likely as not*, *likely*, or *certain* to describe each event.  
 5. Peter was born in January. Thomas was born in June. Peter and Thomas have the same birthday.  
 6. The football team won 9 of its last 10 games. The team will win the next game.  
 7. A board game has a rule that if you roll the game cube and get a 6, you get an extra turn. You get an extra turn on your first roll.

SEE EXAMPLE  
p. 714

- 3 An experiment consists of rolling a number cube. Use the results in the table to find the experimental probability of each event.  
 8. rolling a 6  
 9. rolling an even number  
 10. not rolling a 6

Outcome	1	2	3	4	5	6
Frequency	5	6	2	2	3	7

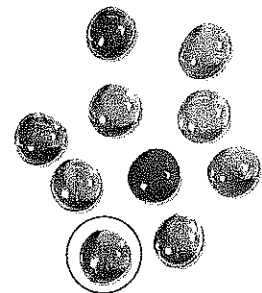
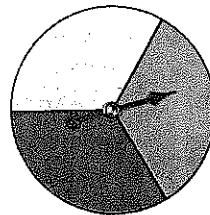
SEE EXAMPLE  
p. 715

- 4 11. **Sports** One game of bowling consists of ten frames. Elyse usually rolls 3 strikes in each game.  
 a. What is the experimental probability that Elyse will roll a strike on any frame?  
 b. Predict the number of strikes Elyse will throw in 18 games.

**PRACTICE AND PROBLEM SOLVING**

Identify the sample space and the outcome shown for each experiment.

12. tossing two coins      13. spinning a spinner      14. selecting a marble



**Independent Practice**

For Exercises	See Example
12-14	1
15-17	2
18-20	3
21	4

**Extra Practice**

Skills Practice p. S23  
 Application Practice p. S37

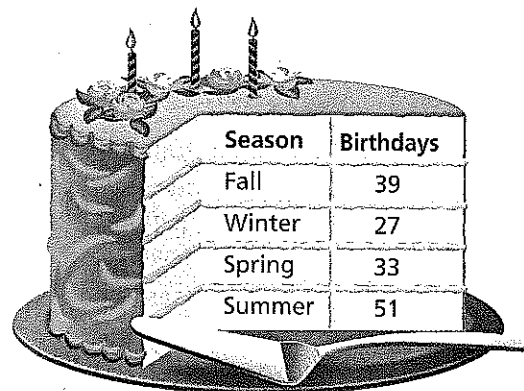
Write *impossible, unlikely, as likely as not, likely, or certain* to describe each event.

15. Marlo purchased a new pair of shoes. She takes one shoe out of the box. The shoe is for the left foot.
16. Sam takes the bus to school. The bus came late twice in the last two weeks. The bus will be late today.
17. Tammy dropped two quarters on the floor. At least one of them lands heads up.

An experiment consists of randomly choosing a marble from a bag. Use the results in the table to find the experimental probability of each event.

Outcome	Frequency
Red	4
Blue	6
Green	6
Yellow	9

18. choosing a yellow marble
19. choosing a blue marble
20. not choosing a green marble
21. **Sports** A ski lodge inspects 80 skis and finds 4 to be defective.
  - a. What is the experimental probability that a ski chosen at random will be defective?
  - b. The lodge has 420 skis. Predict the number of skis that are likely to be defective.
22. The table shows the results of a survey asking students the season of their birthday. What is the experimental probability that a student has a birthday during the summer?
23. You and your friend can either go swimming or to a movie on Thursday. The weather forecast says there is a 70% chance of rain on Thursday. Should you plan on going swimming or to a movie? Explain.



24. **Critical Thinking** Tell why it is important to repeat an experiment many times.
25. **Write About It** Explain what it means for an event to have a 50-50 chance of happening.
26. How many outcomes are in the sample space for an experiment consisting of rolling two standard number cubes?
27. **Estimation** A manufacturing company produced 986 units in one day. Of those, 9 units were found to be defective. Estimate the experimental probability that a unit produced that day was defective. Then predict approximately how many units will be defective when 5680 units are produced in one week.

**MULTI-STEP  
TEST PREP**



28. This problem will prepare you for the Multi-Step Test Prep on page 744.

In a standard deck of cards, there are 13 cards in each of four suits: hearts, diamonds, clubs, and spades. The hearts and diamonds are red and the clubs and spades are black. Ricardo randomly drew cards from a standard deck of 52 cards. The table shows the results.

Outcome	Frequency
Hearts	7
Diamonds	7
Clubs	8
Spades	6

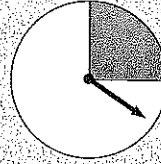
- a. Find the experimental probability of drawing a club.
- b. Find the experimental probability of drawing a black suit.

## THINK AND DISCUSS

Know it!  
Note

1. Tell how to find the probability of the complement of an event.
2. **GET ORGANIZED** Copy and complete the graphic organizer using the spinner.

Probabilities on Spinner	
$P(\text{gray})$	
$P(\text{not gray})$	
Odds in favor of gray	
Odds against gray	



## 10-6

## Exercises



go.hrw.com

Homework Help Online

KEYWORD: MA7 10-6

Parent Resources Online

KEYWORD: MA7 Parent

### GUIDED PRACTICE

1. **Vocabulary** All of the outcomes in the sample space that are not included in the event are called the \_\_\_\_? \_\_\_\_\_. (*theoretical probability, complement, or odds*)

SEE EXAMPLE

1

p. 720

1. Find the theoretical probability of each outcome.
  2. rolling a number divisible by 3 on a number cube
  3. flipping 2 coins and both landing with tails showing
  4. randomly choosing the letter S from the letters in STARS
  5. rolling a prime number on a number cube

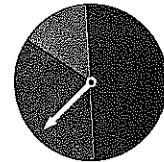
# STARS

SEE EXAMPLE

2

p. 721

6. A spinner is green, red, and blue. The probability that a spinner will land on green is 15% and red is 35%. What is the probability the spinner will land on blue?
7. The probability of choosing a red marble from a bag is  $\frac{1}{3}$ . What is the probability of not choosing a red marble?
8. You have a  $\frac{1}{50}$  chance of winning. What is the probability you will not win?
9. There is a  $\frac{1}{10}$  chance that you will be chosen as class representative. What is the probability that you will not be chosen?

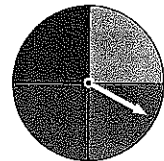


SEE EXAMPLE

3

p. 722

10. The odds against a spinner landing on blue are 3 : 1. What is the probability of the spinner landing on blue?
11. The probability of choosing an ace from a deck of cards is  $\frac{1}{13}$ . What are the odds of choosing an ace?
12. The probability of not winning a game is 80%. What are the odds of winning?
13. The odds in favor of a spinner landing on blue are 1 : 3. What is the probability of landing on blue?



## PRACTICE AND PROBLEM SOLVING

Find the theoretical probability of each outcome.

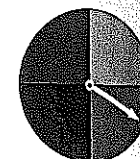
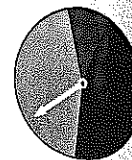
### Independent Practice

For Exercises	See Example
14–16	1
17–19	2
20–22	3

### Extra Practice

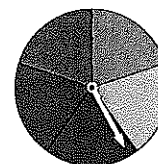
Skills Practice p. 523  
Application Practice p. 537

- rolling a 5 on a number cube
- flipping 2 coins and 1 landing with heads showing, the other with tails showing
- randomly choosing a blue marble from a bag of 5 blue marbles, 8 red marbles, and 7 yellow marbles
- The probability of a spinner landing on yellow is  $\frac{4}{9}$ . What is the probability of it not landing on yellow?
- There is a 3% probability of winning a game. Find the probability of not winning the game.
- There is a 15% chance it will snow and a 15% chance it will rain. What is the probability that it will neither snow nor rain?
- The odds against winning a contest are 99:1. What is the probability of not winning the contest?
- The odds of choosing a white marble from a bag are 1:9. Find the probability of not choosing a white marble.
- The probability of a spinner landing on green is 25%. What are the odds of the spinner not landing on green?



Use the spinner for Exercises 23–28.

- $P(\text{red})$
- $P(\text{green})$
- $P(\text{not blue})$
- odds in favor of yellow
- odds against red
- odds against green



- Write About It** A number cube is rolled. Which event has a greater theoretical probability: rolling a number less than 3 or rolling a number greater than three? Explain.
- /// ERROR ANALYSIS ///** The odds in favor of an event are 1:4. Two students converted these odds into the probability of the event NOT happening. Which is incorrect? Explain the error.

A	
Odds in favor of event	1:4
Probability that event will not happen	$\frac{1}{5}$

B	
Odds in favor of event	1:4
Probability that event will not happen	$\frac{4}{5}$

- Critical Thinking** The odds in favor of a certain event are the same as the odds against that event. What is the probability of the event occurring?

### MULTI-STEP TEST PREP



- This problem will prepare you for the Multi-Step Test Prep on page 744. Chutes and Ladders is a children's game that uses a spinner with the numbers 1 through 6.
  - What is the probability of a spinning a 3?
  - What is the probability of spinning an odd number?
  - What is the probability of spinning a number that is less than or equal to 4?