Chapter 9 Review

Vocabulary Review

complement (p. 309)
compound event (p. 326)
counting principle (p. 320)
dependent events (p. 327)
event (p. 308)
experimental probability (p. 313)
independent events (p. 326)
outcome (p. 308)
sample space (p. 319)
simulation (p. 335)
theoretical probability (p. 308)
trial (p. 335)

Choose the correct term to complete each sentence.

1. The set of all possible outcomes of a probability experiment is the (compound event, sample space) of the experiment.
2. An outcome or a group of outcomes is called a(n) (event, simulation).
3. Two events are (dependent, independent) if the occurrence of one event does not affect the probability of the occurrence of the other.
4. You select a marble from a bag that contains 4 green marbles and 4 white marbles. Selecting a white marble is the (complement, trial) of selecting a green marble.
5. (Theoretical, Experimental) probability is based on observations.

Lesson 9-1

- To find the probability and the complement of an event

You can find the **theoretical probability** of an event using this formula.

$$P(\text{event}) = \frac{\text{number of favorable outcomes}}{\text{total number of possible outcomes}}$$

You select a card at random from the cards shown at the right. Find each probability.

T	R	U	M	P	E	T

6. $P(\text{P})$

7. $P(\text{vowel})$

8. $P(\text{not P})$

Lesson 9-2

- To find experimental probability and to use simulations

You find the **experimental probability** of an event using this formula.

$$P(\text{event}) = \frac{\text{number of times an event occurs}}{\text{total number of trials}}$$

Games **A computer game company makes random checks of its games. Of 200 games, 4 are found to be defective.**

9. Find the experimental probability that a game is defective.

10. If the trend continues, predict the number of defective games in a batch of 1,600.

Lesson 9-3

- To make and use sample spaces and to use the counting principle

The collection of all possible outcomes in a probability experiment is called a **sample space.** You can use the **counting principle** to find the number of outcomes in a sample space.

Use the menu below for Exercises 11–13.

Appetizers	**Soups**
Egg Rolls	Won-ton
Fried Won-tons	Sizzling Rice

Main Dishes
Almond Chicken
Sweet & Sour Pork
Beef with Broccoli

11. At the China Panda, if you order the family dinner, you choose one appetizer, one soup, and one main dish from the menu. Draw a tree diagram to show the sample space.

12. You ask the restaurant to choose the meal for you at random. What is the probability of getting the egg rolls, won-ton soup, and almond chicken for your meal?

13. Use the counting principle to find the number of possible dinners.

11.

Lesson 9-4

- To find the probability of independent and dependent events

A **compound event** consists of two or more events. Two events are **independent events** if the occurrence of one event does not affect the probabilty of the occurrence of the other. Two events are **dependent events** if the occurrence of one event affects the probability of the occurrence of the other.

A hat contains the names of eight girls and six boys. You select two names without replacing the first name. Find each probability.

14. $P(\text{boy, then boy})$ **15.** $P(\text{girl, then boy})$ **16.** $P(\text{girl, then girl})$

17. Two independent events A and B both have a probability of $\frac{1}{4}$. Find $P(A, \text{then } B)$.

Lesson 9-5

- To design and use simulations to estimate the probability of compound events

A **simulation** is a model used to estimate the probability of an event. Each **trial** of a simulation or probability experiment results in an outcome.

One third of the cards in a board game cause a player to lose points. Use this information for Exercises 18 and 19.

18. Design a simulation that can be used to estimate the probability that a player can draw at least 4 cards without losing any points.

19. Perform 20 trials of the simulation. Then estimate the probability.