English Spanish

9 Chapter Review

Check It Out
Vocabulary Help
BigIdeasMath.com

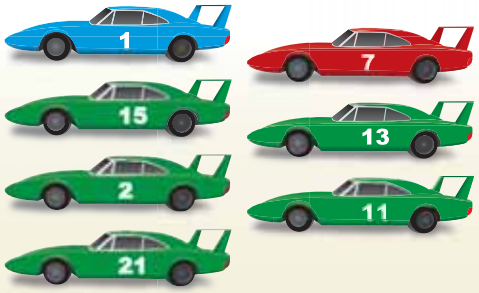
Review Key Vocabulary

experiment, *p. 386*
outcomes, *p. 386*
event, *p. 386*
probability, *p. 387*
theoretical probability, *p. 392*
fair experiment, *p. 393*
experimental probability, *p. 400*
independent events, *p. 406*
dependent events, *p. 406*

Review Examples and Exercises

9.1 Introduction to Probability *(pp. 384–389)*

You randomly choose one toy racecar.



a. In how many ways can choosing a green car occur?

b. In how many ways can choosing a car that is *not* green occur? What are the favorable outcomes of choosing a car that is *not* green?

a. There are 5 green cars. So, choosing a green car can occur in 5 ways.

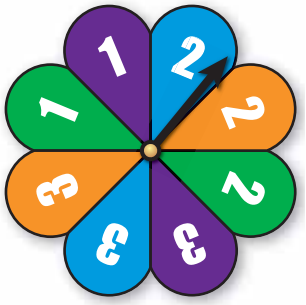
b. There are 2 cars that are *not* green. So, choosing a car that is *not* green can occur in 2 ways.

green	*not* green
green, green, green, green, green	blue, red

∴ The favorable outcomes of the event are blue and red.

Exercises

You spin the spinner. Find the number of ways the event can occur.



1. Spinning a 1
2. Spinning a 3
3. Spinning an odd number
4. Spinning a number greater than 0
5. On the spinner, what are the favorable outcomes of spinning a number less than 3?

English Spanish

9.2 Theoretical Probability *(pp. 390–395)*

The theoretical probability that you choose a purple grape from a bag is $\frac{2}{9}$. There are 36 grapes in the bag. How many are purple?

$$P(\text{purple}) = \frac{\text{number of purple grapes}}{\text{total number of grapes}}$$

$\frac{2}{9} = \frac{n}{36}$ Substitute. Let n be the number of purple grapes.

$8 = n$ Multiply each side by 36.

∴ There are 8 purple grapes in the bag.

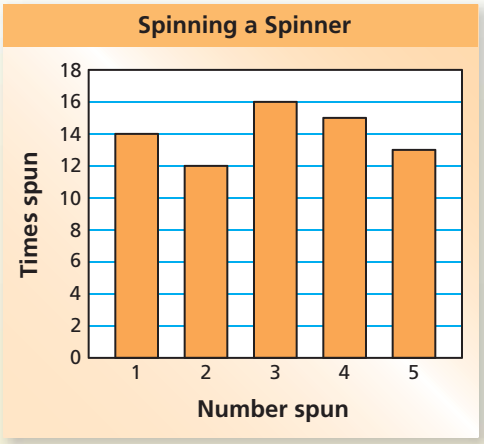
Exercises

6. You get one point when the spinner at the right lands on an odd number. Your friend gets one point when it lands on an even number. The first person to get 5 points wins. Is the game fair? If it is not fair, who has the greater probability of winning?

7. The probability that you spin an even number on a spinner is $\frac{2}{3}$. The spinner has 12 sections. How many sections have even numbers?

9.3 Experimental Probability *(pp. 398–403)*

The bar graph shows the results of spinning the spinner 70 times. What is the experimental probability of spinning a 2?



The bar graph shows 14 ones, 12 twos, 16 threes, 15 fours, and 13 fives. So, a two was spun 12 times in 70 spins.

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

$P(2) = \frac{12}{70}$ ← A 2 was spun 12 times. ← There was a total of 70 spins.

$= \frac{6}{35}$

∴ The experimental probability is $\frac{6}{35}$, or about 17%.

Exercises

Use the bar graph on page 414 to find the experimental probability of the event.

8. Spinning a 3

9. Spinning an odd number

10. *Not* spinning a 5

11. Spinning a number greater than 3

9.4 Independent and Dependent Events *(pp. 404–411)*

You randomly choose a marble without replacing it. Your friend then chooses another marble. What is the probability that you choose a red marble and your friend chooses a blue marble?

Choosing a marble changes the number of marbles left. So, the events are dependent.

$$P(\text{first is red}) = \frac{5}{12}$$

5 ← There are 5 red marbles.

12 ← There is a total of 12 marbles.

$$P(\text{second is blue}) = \frac{3}{11}$$

3 ← There are 3 blue marbles.

11 ← There is a total of 11 marbles left.

Use the formula to find the probability.

$$P(\text{red and blue}) = P(\text{red}) \cdot P(\text{blue after red})$$

$$= \frac{5}{12} \cdot \frac{3}{11} \qquad \text{Substitute.}$$

$$= \frac{5}{44} \qquad \text{Simplify.}$$

∴ The probability of choosing a red marble followed by a blue marble is $\frac{5}{44}$, or about 11%.

Exercises

You randomly choose one of the lettered tiles. Without replacing the first tile, you choose a second tile. Find the probability of choosing the first tile, then the second tile.

12. R and A

13. A and A

14. R and *not* D

15. You choose one of the lettered tiles and flip a coin. What is the probability of choosing an A and flipping heads?