

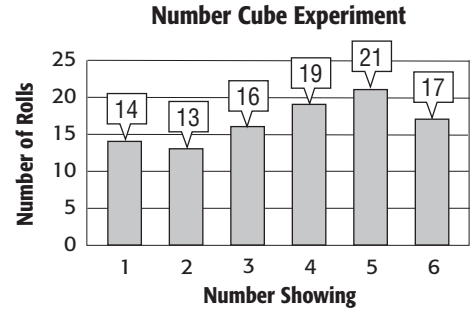
# Lesson 2 Reteach

## Theoretical and Experimental Probability

**Experimental probability** is found using frequencies obtained in an experiment or game. **Theoretical probability** is the expected probability of an event occurring.

### Example 1

The graph shows the results of an experiment in which a number cube was rolled 100 times. Find the experimental probability of rolling a 3 for this experiment. Then compare it to the theoretical probability.



$$P(3) = \frac{\text{number of times 3 occurs}}{\text{number of possible outcomes}}$$

$$= \frac{16}{100} \text{ or } \frac{4}{25}$$

The experimental probability of rolling a 3 is  $\frac{4}{25}$ , which is close to its theoretical probability of  $\frac{1}{6}$ .

### Example 2

In a telephone poll, 225 people were asked for whom they planned to vote in the race for mayor. What is the experimental probability of Juarez getting a vote from a person selected at random?

Candidates	Number of People
Juarez	75
Davis	67
Abramson	83

Of the 225 people polled, 75 planned to vote for Juarez.

So, the experimental probability is  $\frac{75}{225}$  or  $\frac{1}{3}$ .

### Example 3

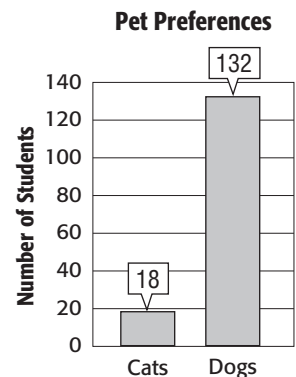
Suppose 5,700 people vote in the election. How many can be expected to vote for Juarez?

$$\frac{1}{3} \cdot 5,700 = 1,900$$

About 1,900 will vote for Juarez.

### Exercises

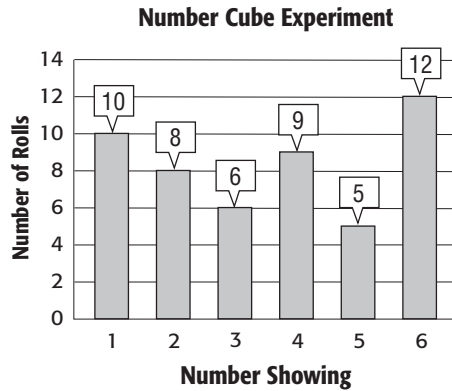
1. **PETS** Use the graph of a survey of 150 students asked whether they prefer cats or dogs.
  - a. What is the experimental probability of a student preferring dogs?
  - b. Suppose 100 students were surveyed. How many can be expected to prefer dogs?
  - c. Suppose 300 students were surveyed. How many can be expected to prefer cats?



# Lesson 2 Skills Practice

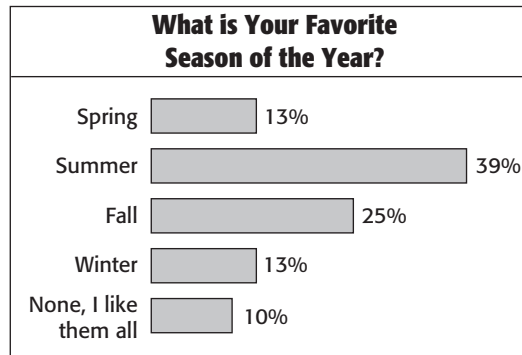
## Theoretical and Experimental Probability

1. A number cube is rolled 50 times and the results are shown in the graph below.



- Find the experimental probability of rolling a 2.
- What is the theoretical probability of rolling a 2?
- Find the experimental probability of *not* rolling a 2.
- What is the theoretical probability of *not* rolling a 2?
- Find the experimental probability of rolling a 1.

2. **SEASONS** Use the results of the survey at the right.



- What is the experimental probability that a person's favorite season is fall? Write the probability as a fraction.
- Out of 300 people, how many would you expect to say that fall is their favorite season?
- Out of 20 people, how many would you expect to say that they like all the seasons?
- Out of 650 people, how many more would you expect to say that they like summer more than they like winter?

Copyright © The McGraw-Hill Companies, Inc. Permission is granted to reproduce for classroom use.