

# 3.22

## Word Problem with Fractions

### • Example 1

A grocery store survey shows that  $\frac{2}{3}$  of the customers will buy meat. Of these,  $\frac{3}{4}$  will buy at least one package of beef. What portion of the store's customers will buy beef?

We know that  $\frac{2}{3}$  of the customers will buy meat and that  $\frac{3}{4}$  of these customers will buy beef. We wish to know  $\frac{3}{4}$  of  $\frac{2}{3}$ . In this situation, "of" means to multiply:

$$\frac{3}{4} \times \frac{2}{3} = \frac{1}{2}.$$

This means that  $\frac{1}{2}$  of the store's customers will buy beef.

### ● ● ● CHECK YOURSELF 1

A supermarket survey shows that  $\frac{2}{5}$  of the customers will buy lunch meat. Of these,  $\frac{3}{4}$  will buy boiled ham. What portion of the store's customers will buy boiled ham?

---

### ● ● ● CHECK YOURSELF ANSWER

1.  $\frac{3}{10}$ .

---

# 3.22 Exercises

Name \_\_\_\_\_

Section \_\_\_\_\_

Date \_\_\_\_\_

## A N S W E R S

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

Solve the following applications.

**1. Elections.** Of the eligible voters in an election,  $\frac{3}{4}$  were registered. Of those registered,  $\frac{5}{9}$  actually voted. What fraction of those people who were eligible voted?

**2. Surveys.** A survey has found that  $\frac{7}{10}$  of the people in a city own pets. Of those who own pets,  $\frac{2}{3}$  have dogs. What fraction of those surveyed own dogs?

**3. Area.** The length of a rectangle is  $\frac{6}{7}$  yd, and its width is  $\frac{21}{26}$  yd. What is its area in square yards?

**4. Student numbers.** At a college,  $\frac{2}{5}$  of the students take a science course. Of the students taking science,  $\frac{1}{4}$  take biology. What fraction of the students take biology?

**5. Student workers.** A student survey found that  $\frac{3}{4}$  of the students have jobs while going to school. Of those who have jobs,  $\frac{5}{6}$  work more than 20 h per week. What fraction of those surveyed work more than 20 h per week?

**6. Material use.** You had  $\frac{7}{8}$  yards of upholstery material but used only  $\frac{2}{3}$  of that for a project. How much material did you use?