



# Chapter Review



## Interactive Study Guide

See pages 141–144 for:

- Vocabulary Check
- Key Concept Check
- Problem Solving
- Reflect

## Lesson-by-Lesson Review

### Lesson 6-1 Using the Percent Proportion (pp. 250–255)

Use the percent proportion to solve each problem.

- 12 is what percent of 60? **20%**
- What is 63% of 130? **81.9**
- 28 is 80% of what number? **35**
- 8 hours is what percent of 24 hours? **33. $\bar{3}$ %**
- What distance is 72% of 120 miles? **86.4 mi**
- 36 pounds is 15% of what weight? **240 lb**
- Thirty percent of the CDs that Monique owns are classical. If Monique owns 120 CDs, how many are classical? **36 CDs**
- At Marie's school, 65% of the students are learning a second language. There are 143 students learning a second language. How many students are in Marie's school? **220 students**
- In a dance class, 70% of the students wear black ballet shoes. There are 30 students that wear black shoes. How many students are in the class? **43 students**

#### Example 1

42 is what percent of 60?

$$\frac{42}{60} = \frac{p}{100}$$

Write the percent proportion.

$$42 \cdot 100 = 60p$$

Find the cross products.

$$4200 = 60r$$

Multiply.

$$\frac{4200}{60} = \frac{60p}{60}$$

Divide each side by 60.

$$70 = r$$

Simplify.

So, 42 is 70% of 60.

#### Example 2

Thirty-six is 24% of what number?

$$\frac{36}{b} = \frac{24}{100}$$

Write the percent proportion.

$$36 \cdot 100 = b \cdot 24$$

Find the cross products.

$$3600 = 24b$$

Multiply.

$$150 = b$$

Divide each side by 24.

So, 36 is 24% of 150.

### Lesson 6-2 Find Percent of a Number Mentally (pp. 256–260)

Find the percent of each number mentally.

- 50% of 36 **18**
- 40% of 55 **22**
- $33\frac{1}{3}\%$  of 27 **9**
- 1% of 167 **1.67**

Estimate. **14–18. See margin.**

- 24% of 40
- 62% of 90
- $\frac{1}{6}$  of 298
- 130% of 250

- Tito had 244 free throw attempts in his high school career. If he was successful 77% of the time, about how many free throws did he make?
- There are 38 students in Mr. Raymond's science class. If 76% of them get an A on the final exam, about how many students got A's? **about 29**

#### Example 3

Find 40% of 90 mentally.

$$40\% \text{ of } 90 = \frac{2}{5} \text{ of } 90$$

Think:  $40\% = \frac{2}{5}$ .

$$= 36$$

Think:  $\frac{2}{5}$  of 90 is 36.

So, 40% of 90 is 36.

#### Example 4

Estimate 78% of 112.

$$78\% \text{ is about } 75\% \text{ or } \frac{3}{4}$$

$$\frac{3}{4} \text{ of } 112 \text{ is } 84.$$

So, 78% of 112 is about 84.

### Lesson 6-3 Using the Percent Equation (pp. 261–266)

Solve each problem using a percent equation.

20. 17 is what percent of 68? **25%**
21. What is  $16\frac{2}{3}\%$  of 24? **4**
22. 55 is 20% of what number? **275**
23. 48 is what percent of 32? **150%**
24. 24 is what percent of 48? **50%**
25. 49 is what percent of 140? **35%**
26. What is 75% of 200? **150**
27. What is 30% of 90? **27**
28. The items in a souvenir shop are on sale for the prices shown. What percent of the original price is the sale price for each item?  
**hat: 75%, towel: 80%, bag: 70%**

Item	Original Price	Sale Price
hat	\$14.00	\$10.50
beach towel	\$17.50	\$14.00
tote bag	\$9.00	\$6.30

29. A jersey is on sale for 50% off the original price. A week later, the manager takes another 50% off. Is the jersey now free? Explain.

#### Example 5

84 is 60% of what number?

The part is 84 and the percent is 60%.  
Let  $w$  represent the whole.

$$\text{part} = \text{percent} \cdot \text{whole}$$

$$84 = 0.6 \cdot w \quad \text{Write the percent equation.}$$

$$\frac{84}{0.6} = \frac{0.6w}{0.6} \quad \text{Divide each side by 0.6.}$$

$$140 = w \quad \text{Simplify.}$$

So, 84 is 60% of 140.

#### Example 6

18 is what percent of 25?

The part is 18 and the whole is 25.  
Let  $p$  represent the percent.

$$\text{part} = \text{percent} \cdot \text{whole}$$

$$18 = p \cdot 25 \quad \text{Write the percent equation.}$$

$$\frac{18}{25} = \frac{25p}{25} \quad \text{Divide each side by 25.}$$

$$0.72 = p \quad \text{Simplify.}$$

Since  $0.72 = 72\%$ , 18 is 72% of 25.

**29. No; the jersey is now 75% off the original price. If the jersey was \$100, it is \$50 after the first markdown. After the manager takes 50% off of \$50, the jersey is \$25, or 75% off the original price.**

### Lesson 6-4 Percent of Change (pp. 270–274)

Find the percent of change. Round to the nearest tenth, if necessary. Then state whether the percent of change is an *increase* or a *decrease*.

30. From 55 lb to 24 lb **−56.4%; decrease**

31. From \$55.75 to \$75.00 **34.5%; increase**

Find the percent error.

32. actual distance: 3.2 m, estimated distance: 3.4 m **6.25%**

33. estimated time: 50 min, actual time: 90 min **44.4%**

34. The number of pints of mint chocolate chip sold last week was 88. If this week 110 pints are sold, what is the percent of increase? **25%**

35. A project estimated to take 30 days was completed in 75 days. What was the percent error of the estimate? **60%**

#### Example 7

Find the percent of change from 64 minutes to 16 minutes.

$$\begin{aligned} \text{percent of change} &= \frac{\text{amount of change}}{\text{original amount}} \\ &= \frac{16 - 64}{64} \\ &= \frac{-48}{64} \\ &= -\frac{3}{4} \text{ or } -0.75 \end{aligned}$$

The decimal  $-0.75$  is written as  $-75\%$ . So, the percent of change is  $-75\%$ .

Since the percent of change is negative, it is a percent of decrease.

## Lesson 6-5 Discount and Markup (pp. 275–280)

Find the selling price for each item given the cost and the percent of markup or discount.

36. tennis shoes: \$85; 24% discount **\$64.60**
37. portable MP3 player: \$150; 36% markup **\$204**
38. pants: \$75; 85% discount **\$11.25**
39. amplifier: \$100; 135% markup **\$235**
40. A surfboard has an original price of \$259. It is on sale for 55% off the original price. Find the sale price of the surfboard. **\$116.55**
41. A jacket with an original price of \$49.95 is discounted 33%. Sales tax of 7% is added to the discounted price. How much does it cost to purchase the jacket? **\$35.81**
42. A laptop case has an original price of \$45. Ellen has a coupon for 35% off the original price. Find how much Ellen paid for the laptop case. **\$29.25**
43. Nathan bought a bicycle for \$230 at an auction. He fixed it up and sold it at a 30% markup. How much did Nathan sell the bike for? **\$299**
44. Nan bought an \$85 dress on sale at 25% off the original price. She paid 5% sales tax on the sale. What was her total bill? **\$66.94**

### Example 8

Find the selling price if a store pays \$37 dollars for a video game and the markup is 25%.

$$m = 0.25 \cdot 37 \quad \text{part} = \text{percent} \cdot \text{whole}$$

$$m = 9.25 \quad \text{Multiply.}$$

Add the markup and the cost. The selling price is  $\$37 + \$9.25$  or  $\$46.25$ .

### Example 9

Felicia got a 20% discount at a spa. She paid \$92. What was the regular price?

She paid 80% of the regular price.

$$\frac{92}{r} = \frac{80}{100} \quad \text{Write the percent proportion.}$$

$$92 \cdot 100 = 80r \quad \text{Find the cross products.}$$

$$9200 = 80r \quad \text{Multiply.}$$

$$115 = r \quad \text{Divide each side by 80.}$$

The regular price was \$115.

## Lesson 6-6 Simple and Compound Interest (pp. 281–285)

Find the simple interest to the nearest cent.

45. \$575 at 6.25% for 7 years **\$251.56**
46. \$12,750 at 5% for 10 years **\$6375.00**

Find the total amount in each account to the nearest cent if the interest is compounded annually.

47. \$2750 at 8% for 3 years **\$3464.21**
48. \$1500 at 12.5% for 2 years **\$1898.44**
49. Lucas borrowed \$10,500 to buy a boat. He will pay \$276.50 each month for the next 48 months. Find the simple interest rate for his loan. **6.6%**
50. What is the total amount of money in an account where \$4000 is invested at an interest rate of 3.5% compounded annually after 3 years? **\$4434.87**

### Example 10

Find the simple interest for \$2500 invested at 3.85% for 4 years.

$$I = prt \quad \text{Write the simple interest formula.}$$

$$I = 2500 \cdot 0.0385 \cdot 4 \quad \text{Substitute}$$

$$I = 385 \quad \text{Simplify.}$$

The simple interest is \$385.