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.

1. 12 is what percent of 60? **20%**
2. What is 63% of 130? **81.9**
3. 28 is 80% of what number? **35**
4. 8 hours is what percent of 24 hours? **$33.\overline{3}\%$**
5. What distance is 72% of 120 miles? **86.4 mi**
6. 36 pounds is 15% of what weight? **240 lb**
7. Thirty percent of the CDs that Monique owns are classical. If Monique owns 120 CDs, how many are classical? **36 CDs**
8. 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**
9. 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.

10. 50% of 36 **18**
11. 40% of 55 **22**
12. $33\frac{1}{3}\%$ of 27 **9**
13. 1% of 167 **1.67**

Estimate. 14–18. See margin.

14. 24% of 40
15. 62% of 90
16. $\frac{1}{6}\%$ of 298
17. 130% of 250
18. 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?
19. 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.

(11.) 10% of 55 = 5.5
20% = 11
40% = 22

Example 4

Estimate 78% of 112.

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

$\frac{3}{4}$ of 112 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.

part = percent · whole

$84 = 0.6 \cdot w$ Write the percent equation.

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

$140 = w$ Simplify.

So, 84 is 60% of 140.

(26) $\frac{x}{200} = \frac{75}{100}$

Example 6

$\frac{200(75)}{100} = \frac{15000}{100}$

18 is what percent of 25?

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

75% of 100 = 75
75% of 200 = 150

part = percent · whole

$18 = p \cdot 25$ Write the percent equation.

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

$0.72 = p$ 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.$\overline{4}$%**

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%**

DIFF / ACTUAL → $\frac{45}{75} = 0.6$ 60%

Example 7

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

(31)

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

1 - FIND THE DIFFERENCE
75 − 55.75 = 19.25

(2) DIFFERENCE / ORIGINAL

The decimal −0.75 is written as −75%. So, the percent of change is −75%.

$\frac{19.25}{55.25}$

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%.

$m = 0.25 \cdot 37$ part = percent · whole

$m = 9.25$ 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.

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

$92 \cdot 100 = 80r$ Find the cross products.

$9200 = 80r$ Multiply.

$115 = r$ Divide each side by 80.

The regular price was \$115.

(41) SAVE 33% PAY 67%

$\$49.95(0.67) = \$33.47$ SALE PRICE

$\$33.47(1.07) = \$35.81$

JACKET TAX

276.5 × 48 = 13272

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.

$I = prt$ Write the simple interest formula.

$I = 2500 \cdot 0.0385 \cdot 4$ Substitute

$I = 385$ Simplify.

The simple interest is \$385. (49)

$\$276.50(48)$

TOTAL PAYMENTS → \$13,272

− PRINCIPAL \$10,500

\$2,772

$I = P \times R \times T$

$R = \frac{I}{P \times T}$

4 YEARS

$\frac{2,772}{10,500 \times 4} = \frac{2,772}{42,000} = 0.066$

6.6%