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Course 1 Unit 4 Practice

LESSON 17-1

1. Use ratios to compare the shapes shown.

a. black shapes to all shapes

b. gray shapes to black shapes

c. circles to squares

d. all shapes to not gray

e. white circles to black squares

2. Which of the following compares the number of triangles to squares?

A. 2:15

B. 2:1

C. 1:2

D. 2:9

3. Reason abstractly. The ratio of red tulips to all tulips in Briana's garden is 1 to 3. Is it reasonable to think that the total number of tulips in the garden is 40? Explain.

4. Reason quantitatively. The number of ducks to geese in Miller's Pond last year was 2:3. This year, the ratio of ducks to geese is 5:9. The number of geese stayed the same. Did the number of ducks increase or decrease? Explain.

5. Make sense of problems. There are 950 students at Hanover High School. The ratio of the number of freshmen to all students is 3:10. The ratio of the number of sophomore to all students is 1:2. What is the ratio of the number of freshman to sophomore?

LESSON 17-2

6. 12 power bars cost $15 at the local food store.

a. Complete the ratio table.

Number of Power Bars	4			72	
Total Cost ($15)		15	45		135

b. Use the table to name four ratios equivalent to $\frac{12}{15}$.

c. Which ratio is equivalent to $\frac{12}{15}$ in lowest terms?

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7. Which pair of ratios are equivalent?

A. $\frac{2}{3}$ and $\frac{5}{6}$

B. $\frac{2}{5}$ and $\frac{4}{8}$

C. $\frac{3}{4}$ and $\frac{6}{8}$

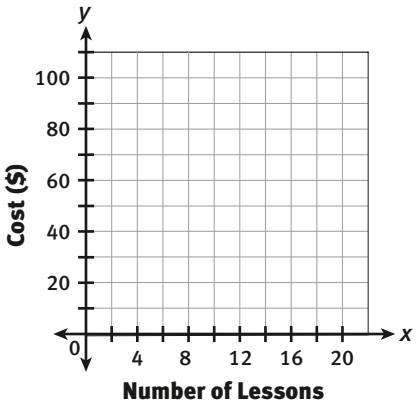
D. $\frac{5}{9}$ and $\frac{15}{6}$

8. Model with mathematics. For every 6 swimming lessons Kelsey charges $30.

a. Complete the table to find the amount Kelsey should charge for 1, 3, and 12 swimming lessons.

Number of Lessons, x	1	3	6	12
Total Cost ($), y				

b. Graph the relationship between the number of lessons x and the total cost y.



c. Use your graph to determine how much Kelsey should charge for 5 lessons.

9. Which ratio is equivalent to $\frac{6}{21}$?

A. $\frac{3}{18}$

B. $\frac{2}{7}$

C. $\frac{12}{18}$

D. $\frac{24}{36}$

10. Reason quantitatively. A recipe for a suet cake feeder calls for 2 cups of seed for every 6 cups of suet.

a. Complete the ratio table.

Cups of Seed	1	2	6		
Cups of Suet		6		24	30

b. How many cups of seed are needed with 24 cups of suet?

c. How many cups of suet are needed with 6 cups of seed?

d. Use the table to name four ratios equivalent to $\frac{2}{6}$.

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LESSON 18-1

11. a. Reason quantitatively. If a hummingbird is filmed at 140 frames in one second, there are 140 photos of the hummingbird. If you played the film at 10 frames per second, how long would the film play?

b. If the photographer films the hummingbird at five times the initial speed of 140 frames in 1 second, she will have more photos of the hummingbird. How many photos will she have with the faster filming?

12. Make sense of problems. How many frames of film would be needed for a 2-minute film if it is filmed at 1,200 frames every second?

A. 2,400

B. 14,000

C. 144,000

D. 240,000

13. A business executive earns an average salary of $74,220 per year. What does the executive earn per month?

A. $3,250

B. $6,185

C. $7,120

D. $7,250

14. Donald has a deadline in $3\frac{1}{2}$ days. How many hours are in $3\frac{1}{2}$ days?

15. Franklin has 15 weeks to prepare for the upcoming marathon.

a. What is the conversion factor that will be used to convert weeks to days?

b. How many days does Franklin have to prepare for the marathon?

LESSON 18-2

16. Sandra has a photo that is 9-inches by 12-inches. She wants to resize the photo by the scale factor of $\frac{3}{4}$. What will be the dimensions of the new photo?

17. Reason quantitatively. Chen has a new job that pays him $200 for an 8-hour day.

a. How much will Chen earn working on a project for 15 hours?

b. Make a graph of the relationship between the number of hours Chen works and the amount he earns.

c. How much will Chen earn for 18 hours of work?

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18. Lionel earns $18.20 per hour. How much will Lionel earn if he works 6 hours?

A. $108.00

B. $109.20

C. $145.60

D. $182.00

19. Aretha is driving her car 325 miles to get to her vacation home. She travels the first 195 miles in 3 hours. At this rate, how long will it take her to make the complete trip?

A. 4 hours

B. 4.5 hours

C. 5 hours

D. 5.75 hours

20. Melvin is making a large poster for the school carnival. He sketches his design on a 9 in. by 12 in. sheet of paper. He then expands his design using a scale factor of 3.

a. What are the dimensions of the poster?

b. What is the area of the poster?

LESSON 19-1

21. A factory can produce 720 wagons in an 8-hour day. What is the unit rate per hour?

A. 45

B. 90

C. 728

D. 5,760

22. Find the missing value.

$$\frac{\$36}{4 \text{ dozen bagels}} = \frac{?}{1 \text{ dozen bagels}}$$

23. Solve: $\frac{\$60}{5 \text{ dozen bagels}} = \frac{x}{1 \text{ dozen bagels}}$

A. $8

B. $12

C. $65

D. $300

24. Construct viable arguments. Kendall says that $4 for 3 pencils is a unit rate. Explain if he is correct.

25. Make sense of problems. A recipe for hummingbird food has a ratio of 1 cup of sugar to 4 cups of water. How much sugar is there for each cup of water?

LESSON 19-2

26. The sale flyer for cereal at a local grocery store is shown.

Cereal

3 for $7.65
or
$2.69 each

a. What is the unit price if you buy using the 3-box deal?

b. How much will you save by using the 3-box deal instead of buying three boxes at the regular price?

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27. The length of a car measures 20 feet. What is the length of a model car if the scale factor is 1:64 inches?

A. 1.67 inches

B. 3.21 inches

C. 3.75 inches

D. 4.25 inches

28. Reason abstractly. In 100 ounces of juice, there are 1,125 calories. How many calories are there per ounce of juice?

29. Maurice paid $16.50 for parking cars for 6 hours. What is the unit rate per hour for parking cars?

A. $2.75

B. $3.15

C. $3.25

D. $99.00

30. Make sense of problems. Packages of batteries come in 3 different size packages.

	# of batteries in the package	Total Price	Unit Price
Package A	4	$2.68	
Package B	10	$4.20	
Package C	24	$8.64	

a. Complete the table to determine the unit price for each package of batteries.

b. Which package is the best deal?

LESSON 19-3

31. What is the average speed of a runner who covers 5 kilometers in 25 minutes?

32. The following are distance and times of 4 turtles walking on a road. Which turtle is the *slowest*?

A. 1.40 meters in 4 minutes

B. 1.68 meters in 6 minutes

C. 2.56 meters in 8 minutes

D. 3.10 meters in 10 minutes

33. Express regularity in repeated reasoning. If 5 miles is the distance a cyclist travels in 20 minutes, then how many miles does the cyclist travel in 1 minute?

a. Write and solve a proportion.

b. Write this rate using the word *per*.

34. Carmen is comparing the number of pages a printer can print in color to help him decide on which printer to purchase. Which printer is *fastest*?

A. 85 pages in 5 minutes

B. 133 pages in 7 minutes

C. 63 pages in 3 minutes

D. 90 pages in 6 minutes

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35. Make sense of problems. The following table shows the distance and time 3 different cars travel.

	Miles	Time	Miles per hour
Car A	434	7 hours	
Car B	374	5.5 hours	
Car C	585	9 hours	

a. Write and solve a proportion.

b. Write this rate using the word *per*.

c. How can you use proportion to show which car is fastest?

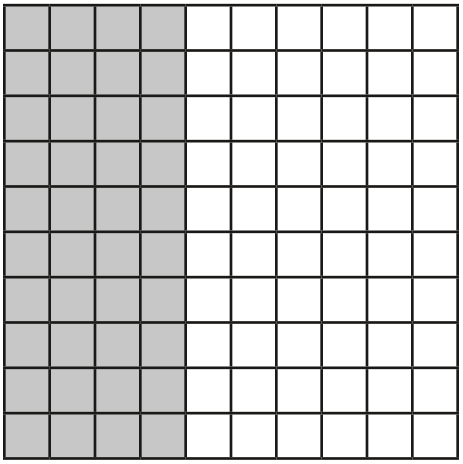
d. Complete the table.

e. Which car is the fastest?

LESSON 20-1

36. Model with mathematics. Use the grid to answer the following questions.

a. How many squares out of 100 are shaded?



b. Replace *out of 100* with the word *percent*.

c. Replace *percent* with its symbol.

37. What is $\frac{8}{100}$ as a percent?

A. 0.8%

B. 8%

C. 80%

D. 800%

38. Write each fraction as a percent.

a. $\frac{6}{10}$

b. $\frac{4}{5}$

c. $\frac{7}{20}$

d. $\frac{7}{8}$

39. What percent of a dollar is 35 cents?

A. 0.35%

B. 3.5%

C. 35%

D. 350%

40. Make sense of problems. Out of 100 customers in a coffee shop, 56 ordered coffee and 19 ordered tea. What percent did not order either?

LESSON 20-2

41. Devonte shot 50 free throws and made 37 of them. What percent of his shots did he make?

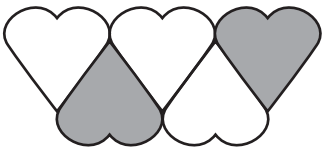
A. 13%

B. 37%

C. 50%

D. 74%

42. Reason quantitatively.



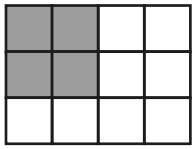
a. Write the number of shaded hearts as a ratio using a colon to represent part to whole.

b. Write the number of shaded hearts as a fraction.

c. Write the number of shaded hearts as a decimal.

d. Write the number of shaded hearts as percent.

43. Model with mathematics. What percent of this figure is shaded?



A. 4%

B. 12%

C. $33\frac{1}{3}\%$

D. 40%

44. Convert each fraction, decimal or ratio, to a percent. If not already in hundredths, first convert to hundredths and then write as a percent.

a. 0.65

b. $\frac{49}{100}$

c. 0.2

d. $\frac{13}{25}$

45. Complete the table.

Fraction	Decimal	Percent
$\frac{1}{2}$		50%
	0.8	
$\frac{3}{10}$		
		$66\frac{2}{3}\%$

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LESSON 20-3

46. Use $<$ or $>$ to make each statement true.

a. 0.765 _____ 76.7%

b. $\frac{5}{9}$ _____ 54%

c. 61% _____ 0.6

d. 15% _____ 0.015

47. Which fraction is equivalent to 30.4%?

A. $\frac{2}{15}$

B. $\frac{33}{125}$

C. $\frac{17}{50}$

D. $30\frac{4}{10}$

48. Reason quantitatively. A factory produces candles at a rate of 1500 per hour. They know that 1.25% of the candles must be rejected for damage.

a. Express this percent as a rate per hundred.

b. Write and solve a proportion to find out how many candles are rejected each hour during production.

49. Which of the following is the *greatest* value?

A. $\frac{4}{7}$

B. 48%

C. $\frac{5}{11}$

D. 0.529

50. Model with mathematics. The local humane society cared for 4578 dogs in one year. About $\frac{1}{3}$ of these dogs were over the age of 8 years old. What percentage of the dogs were over 8 years old?

LESSON 21-1

51. 60 is what percent of 80?

A. 20%

B. 48%

C. 65%

D. 75%

52. Make sense of problems. Mr. and Mrs. Jenkins wanted to make a down payment of $25,000 on a house. If the house costs $125,000, what percent is this?

53. Reason quantitatively. On a 600 acre farm, 180 acres were used to grow soy beans. What percent of the total farm was used to grow soybeans?

a. Set up the proportion.

b. Solve the proportion.

c. Write as a percent.

54. Marcus has $30 but needs a total of $45 to buy a new soccer jersey. What percent of the money has he saved for the purchase?

A. 15%

B. $66\frac{2}{3}\%$

C. 75%

D. 150%

55. On Friday, Sergio took a History test. The test contained 40 questions. If Sergio got 36 questions correct, what percent did he receive on the test?

LESSON 21-2

56. Find the interest for a used car loan if the car costs 6,000 and the interest rate is 7% for one year.

a. Set up the proportion.

b. Solve the proportion.

c. What is the amount of interest?

57. What is 115% of 130?

A. 145

B. 149.5

C. 175

D. 245

58. Make sense of problems. A recliner has an original price of $450. It is on sale for 15% off.

a. What is 15% of 450?

b. What is the price after the discount?

59. On a bike tour, Eva will travel 175 miles. If she completes 20% of the tour, how many miles will she ride?

A. 35 miles

B. 40 miles

C. 87.5 miles

D. 155 miles

60. Reason abstractly. In a survey of 612 students, 46% said they participated in a sport. Use estimation to explain about how many students took part in a sport.

LESSON 21-3

61. 6 is 12% of what number?

A. 2

B. 50

C. 62

D. 72

62. Reason quantitatively. Gilbert volunteered 32 hours last month at a local animal shelter. This is 20% of the total hours that he has volunteered this year. How many hours did he volunteer this year?

a. Set up the proportion.

b. Solve the proportion.

63. An office supply warehouse shipped 432 printers. If this represents 72% of the total inventory, how many printers did the warehouse have?

A. 360

B. 504

C. 600

D. 1017

64. Jose paid $56 for a lunch bill that included a 15% tip.

a. Write an equation to find the total amount of the bill.

b. Solve the equation.

65. Make sense of problems. An appliance store sold a refrigerator for $775. The sale price was 25% off after an instant rebate of $25.00. What was the original price of the refrigerator?