8–1

Name _____ Date _____

Homework Practice

6NS1.2

Ratios and Rates

Chapter Resources

Write each ratio as a fraction in simplest form. Then explain its meaning.

1. A teacher has 15 minutes each day to teach handwriting and 40 minutes each day to teach spelling. What is the ratio of time spent teaching handwriting to time spent teaching spelling?

_____

2. A theatre club has 5 boys and 10 girls. What is the ratio of boys to girls?

_____

3. On Saturday, there are 10 trains leaving from a train station, and there are 25 planes leaving from an airport. What is the ratio of trains to planes?

_____

Write each rate as a unit rate.

4. $12 for 4 lunch meals

_____

5. 92 miles in 2 hours

_____

Spiral Review

Solve each equation. Check your solution. (Lesson 7–11)

6. $2x = 24$ _____

7. $-4m = -24$ _____

8. $81 = 9x$ _____

9. $6t = 12$ _____

10. $-5s = -60$ _____

11. $56 = 7x$ _____

8–1

Name _____ Date _____

Problem-Solving Practice

6NS1.2

Ratios and Rates

Solve.

1. The ratio of red marbles to green marbles is 2 to 3. Write this ratio two other ways.

_____

2. Miriam can read 120 pages in 3 hours. How many pages can she read in 1 hour?

_____

3. Darcy exchanged 10 U.S. dollars and received 15 New Zealand dollars. How many New Zealand dollars would she get for 50 U.S. dollars?

_____

4. Alisha and Saundra are playing checkers. There are 7 red checkers and 10 black checkers left on the board. What is the ratio of black checkers to the total?

_____

5. Russ gives Juliana a bag of marbles and tells her that the ratio of red marbles to the total number is 3 to 19. He also tells her there are 3 times as many yellow marbles as red, and that there are 2 more green than red. What is the ratio of yellow marbles to green?

_____

6. When Robbie walks 10 feet, he takes 7 steps. How many steps would he take if he walked 100 yards? How many steps would he take if he walked 1 mile?

_____

7. Angie spends 10 minutes each day talking on her cell phone and Sandy spends 45 minutes talking on her cell phone. What is the ratio of the time Angie spends talking on her cell phone to the time Sandy spends talking on her cell phone? Write it in simplest form.

_____

8. Joseph ran the marathon in 5 hours. If a marathon is about 25 miles and Joseph ran at a constant rate, how many miles per hour did Joseph run?

_____

Name _____ Date _____

8–2 Homework Practice

5MR1.1, 5NS2.1

Problem-Solving Strategy

Solve. Use the *look for a pattern* strategy.

1. **ALGEBRA** Describe the pattern below. Then, find the missing number. 50, 500, _____ 50,000

2. Joe is stacking cans of fruit in a triangular form for a display. The top row has 2 cans, the second row has 4 cans, and the third row has 8 cans. How many cans will be on the fifth row? _____

3. Write a problem that can be solved by looking for a pattern. Then solve the problem.

Spiral Review

Write each ratio as a fraction in simplest form. Then explain its meaning. (Lesson 8–1)

4. A dance class has 8 boys and 16 girls. What is the ratio of boys to girls?

5. On Saturday, there are 5 trains leaving from a station in Philadelphia and going to New York City, and there are 25 buses going from Philadelphia to New York City. What is the ratio of trains to buses leaving Philadelphia and going to New York City?

6. A bookstore has 48 graphic novels and 72 short story collections. What is the ratio of graphic novels and short story collections?

8-3

Name _____ Date _____

Homework Practice

5MR2.3, 5NS2.1

Ratio Tables

Use the ratio tables given to solve each problem.

1. To make 2 glasses of orange juice, you need 20 oranges. How many oranges do you need to make 6 glasses of orange juice? _____

Number of Oranges	20	40	
Number of Glasses	2	4	6

2. The science museum requires that 3 adults accompany every 30 students. How many adults must accompany 150 students? _____

Number of Students	10	30	120	150
Number of Adults	1	3	12	

3. Sonya bought 6 cases of bottled water for $24. How much will Sonya pay to buy 4 more cases of bottled water? _____

Cost	$4	$8	$12	
Cases of Bottled Water	1	2	3	4

4. Sherri purchased 500 beads for $25 to make bracelets. If she needs 100 more beads, how much will she pay if she is charged the same rate? _____

Cost	$.05		$10	$25
Number of Beads	1	100	200	500

Spiral Review

Solve. Use the *look for a pattern* strategy. (Lesson 8–2)

5. **ALGEBRA** Describe the pattern below. Then find the missing number.

   20, 60, _____, 540 _____

6. Joe is stacking boxes of sneakers in stacks on shelves. The first shelf holds stacks of 8, and the second shelf holds stacks of 6. How many stacks of sneakers will be on the fourth shelf? _____

7. In 2000, Jack earned $1,200 for the year and Eddie earned $600 for the year. In 2001, Jack earned $1,800 and Eddie earned $1,400. If the amount of money that each earns increases by the same amount, what year will they be earning the same amount of money? _____

8–3

Name _____ Date _____

Problem-Solving Practice

5MR2.3, 5NS2.1

Ratio Tables

Use ratio tables to solve each problem.

1. Before leaving for a school trip to Spain, Matt traded 500 U.S. dollars and received 250 euros. When he returned from Spain, he had 50 euros left. How much will he receive when he exchanges these euros for dollars?

_____

2. Apples are on sale at 10 for $2. Find the cost of 36 apples.

_____

3. Before administering a medicine, a veterinarian needs to know an animal's weight in kilograms. If 20 pounds is about 9 kilograms and a dog weighs 40 pounds, what is the dog's weight in kilograms? Explain your reasoning.

_____

4. If a hummingbird were to get all of its food from a feeder, then a 16-ounce nectar feeder could feed about 80 hummingbirds a day. How many hummingbirds would you expect to be able to feed with a 4-ounce feeder?

_____

5. A patient receives 2 milliliters of antibiotic every 4 hours. At that rate, how many hours will it take to receive 20 milliliters of antibiotic?

_____

6. Luis won a peanut eating contest by eating 4,800 peanuts in 4 hours. If he ate at a constant rate, how many peanuts had he eaten after 3 hours?

_____

8–4

Name _____ Date _____

Homework Practice

5AF1.5

Equivalent Ratios

Determine if the quantities in each pair of ratios or rates are equivalent. Explain your reasoning.

1. $15 for 5 books; $35 for 7 books

_____

2. $20 for 10 sandwiches; $100 for 50 sandwiches

_____

3. $12 for 4 roses; $30 for 6 roses

_____

4. 950 miles driven on 50 gallons of fuel; 840 miles driven on 24 gallons of fuel

_____

Spiral Review

For Exercises 5–6, use the ratio tables given to solve each problem. (Lesson 8–3)

5. To make 6 servings of baked potato skins, you need 18 potatoes. How many potatoes do you need to make 15 servings of baked potato skins?

Baked Potato Skins	6		15
Number of Potatoes	18		

6. The aquarium requires that 5 adults accompany every 50 students. How many adults must accompany 200 students?

Students	50			200
Adults	5			

8–4

Name _____ Date _____

Problem-Solving Practice

5AF1.5

Equivalent Ratios

Determine if the quantities in each pair of rates are equivalent. Explain your reasoning.

1. Mai spent $2.50 to make 5 prints from her digital camera. Later, she went back to the same store and spent $5 to make 10 more prints.

_____

2. The Drama Club raised $52 by selling 26 fresh muffins. The Chess Club raised $36 by selling 18 fresh muffins.

_____

3. The Exercise Club raised $100 by selling 20 exercise CDs. The Hiking Club raised $200 by selling 20 nature walk CDs.

_____

4. Soto can do 100 push-ups in 5 minutes. Steven can do 120 push-ups in 6 minutes.

_____

5. One school survey showed that 4 out of 5 students take the bus to school. Another survey showed that 6 out of 10 students take the bus to school.

_____

6. Koko enlarged a photograph to 6 inches by 9 inches. Will it fit well in a frame that is 12 inches by 9 inches if she puts 3-inch matting around the photograph?

_____

Name _____ Date _____

8–5 Homework Practice

5MR2.3, 5SDAP1.1

Problem-Solving Investigation

Use any strategy shown below to solve each problem.

- Act it out
- Look for a pattern
- Make a table

1. Frank completed 3 passes the first year that he played football, 5 the second year, and 7 the third year. At this rate, how many passes should he expect to complete by his sixth year playing football?

_____

2. To train for the Math League competition, Janice spent $\frac{1}{2}$ hour each day of the first week reviewing lessons, adding an additional $\frac{1}{2}$ hour each week for 4 weeks. What were the total number of hours she spent reviewing during the fourth week?

_____

3. The table below shows the amount of snow in Maine for 4 weeks during January. What is the mean amount of snow that fell during the month of January?

Week	1	2	3	4
Snow (in.)	21	28	29	22

_____

Spiral Review

Determine if the quantities in each pair of ratios or rates are equivalent. Explain your reasoning. (Lesson 8–4)

4. $5 for 10 notebooks; $40 for 8 notebooks

_____

5. $9 for 3 rolls of film; $30 for 15 rolls of film

_____

Name _____ Date _____

8–6 Homework Practice

5AF1.1, 5AF1.2

Algebra: Ratios and Equations

Solve.

1. $\frac{2}{3} = \frac{x}{9}$ _____
2. $\frac{1}{5} = \frac{x}{10}$ _____
3. $\frac{y}{4} = \frac{1}{2}$ _____
4. $\frac{6}{8} = \frac{x}{48}$ _____
5. $\frac{5}{25} = \frac{x}{5}$ _____
6. $\frac{15}{45} = \frac{1}{t}$ _____
7. $\frac{20}{4} = \frac{5}{p}$ _____
8. $\frac{1}{7} = \frac{x}{49}$ _____

Spiral Review

Use any strategy shown below to solve each problem. (Lesson 8–5)

- Look for a pattern
- Act it out
- Make a table

9. Andrew is taking a picture of the group of 5 crossing guards. The group leader must be in the middle of the group with 3 crossing guards on either side of him. How many different ways can Andrew arrange the crossing guards for the picture?

_____

10. Tonya took a survey of the number of pencils students bring to school each week. Which is greater for this set of data, the mode or the median?

Number of Pencils

6, 4, 2, 3, 1, 6, 0, 7, 5, 1, 1, 0, 7, 4, 4, 2, 1, 3, 7, 6

_____

11. Trina and her mother drove 110 miles to visit her grandmother. They drove 30 miles an hour for the first 60 miles and then 50 miles an hour for the rest of the trip. How many hours did it take them to complete the trip?

_____

Name _____ Date _____

8–6

Problem-Solving Practice

5AF1.1, 5AF1.2

Algebra: Ratios and Equations

Solve.

1. A florist is using carnations to make bouquets for each table in a restaurant. He has used 24 carnations for 3 bouquets. There are 27 tables in the restaurant. Write an equation to express the relationship between the 24 carnations for 3 bouquets and the number of carnations c needed for 27 tables. Then solve.

_____

2. A recent survey reported that out of 200 middle school students, 120 said that they read at least one news story in the newspaper every day. At this rate, how many out of 600 middle school students would you expect to read at least one news story in the newspaper every day?

_____

3. Jim spent $51 on 3 CDs. At this rate, how much would 8 CDs cost?

_____

4. Suppose 5 out of every 30 students get on the honor roll. Predict how many students will get on the honor roll in a school system of 1,200 students.

_____

5. This past Saturday, a free ticket to the circus was placed on the back of every fifth sales receipt. If there were 7,200 sales receipts given out, how many people got a free ticket to the circus?

_____

6. After selling tickets for 2 hours, the circus company had already sold 450 tickets. If tickets continue to sell at this rate for the next 3 hours, how many more tickets will the circus company sell?

_____

Name _____ Date _____

8–7 Homework Practice

5AF1.2, 5AF1.5

Algebra: Sequences and Expressions

Use words and symbols to describe the value of each term as a function of its position. Then find the value of the tenth term in the sequence.

1.

Position	2	3	4	5	*n*
Value of Term	10	15	20	25	

_____

_____

2. There are 60 minutes in 1 hour. Make a table and write an algebraic expression relating the number of hours to the number of minutes. Then find the number of minutes Lucas spent exercising if he exercised 6 hours.

Hours					
Minutes					

_____

Spiral Review

Solve. (Lesson 8–6)

3. $\frac{6}{12} = \frac{x}{2}$ _____

4. $\frac{3}{24} = \frac{1}{y}$ _____

5. $\frac{y}{16} = \frac{2}{32}$ _____

6. $\frac{5}{8} = \frac{x}{40}$ _____

7. $\frac{5}{45} = \frac{x}{9}$ _____

8. $\frac{18}{72} = \frac{1}{t}$ _____

9. $\frac{30}{6} = \frac{5}{p}$ _____

10. $\frac{21}{7} = \frac{x}{1}$ _____

8–7

Name _____ Date _____

5AF1.2, 5AF1.5

Problem-Solving Practice

Algebra: Sequences and Expressions

Write an algebraic expression to solve.

1. There are 3 feet in 1 yard. Write an algebraic expression relating the number of feet in a yard. Then find the length of a field in yards if it is 60 feet long.

_____

2. There are 24 hours in 1 day. Write an algebraic expression relating the number of hours to the number of days. Then find the number of hours in 5 days.

_____

3. It costs $12 an hour to rent a colonial costume. Write an expression to find the amount charged for renting a costume for n hours. Then use the expression to find out how much it would cost to rent a costume for 5 hours.

_____

4. A student is charged $0.50 for every day a library book is overdue. Write an expression to find the amount charged for returning a book n days overdue. Then use the expression to find out how much it would cost to return a book 10 days overdue.

_____

5. The label says there are 6 grams of protein in one cup of ice cream. Write an algebraic expression relating the grams of protein to the number of cups. Then find the amount of protein in 3 cups of ice cream.

_____

8–8

Name _____ Date _____

Homework Practice

5AF1.1, 5AF1.5

Algebra: Equations and Graphs

Write an equation to represent the function displayed in the table.

1.

Input, x	1	2	3	4	5
Output, y	5	10	15	20	25

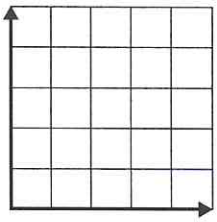
_____

Use the following information for Exercises 2–4.

In a video game, each player earns 10 points for every coin he or she collects.

2. Make a table to show the relationship between the number of coins collected, c and the total points, p. Graph the results on a coordinate grid.

Number of coins, c				
Total points, p				



3. Write an equation to find p. _____

4. How many points will a player earn if he or she collects 9 coins? _____

Spiral Review

Solve. (Lesson 8–7)

5. There are 60 minutes in 1 hour. Write an algebraic equation relating the number of hours to the number of minutes. Then find the duration of the movies in hours if Liz and her friends watched two movies that together were 270 minutes long.

_____

8-8

Name _____ Date _____

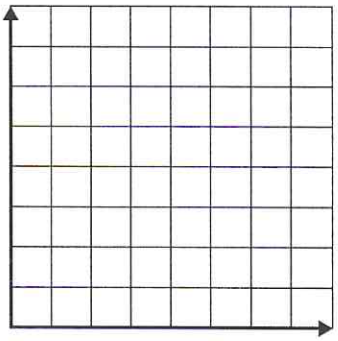
Problem-Solving Practice

5AF1.1, 5AF1.5

Algebra: Equations and Graphs

Write an equation to represent the function displayed in the table.

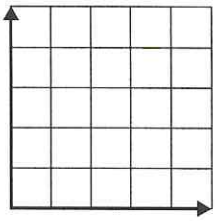
Hours Walking Dogs	1	2	3	4
Earnings ($)	$2	$4	$6	$8



1. The table shows the amount of money Yvonne earns based on the number of hours she walks dogs. Write a sentence and an equation to describe the data. Then find the total earnings for 6 hours, 7 hours, and 8 hours. Graph the results on a coordinate grid.

_____

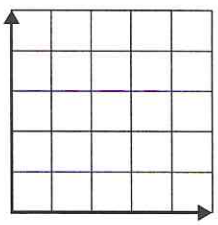
2. The basketball team is holding a car wash to raise money. They are charging $8 for each car they wash. Make a table to show the relationship between the number of cars washed, *c* and the total amount earned, *t*. Graph the results on a coordinate grid. Then, write an equation to find the total amount earned, *t* for washing cars, *c*.



Cars Washed, *c*	1	2	3
Amount Earned, *t*	$8		

_____

3. While in normal flight, a hawk flies at an average speed of 10 miles an hour. Make a table to show the relationship between the total distance, *d* that a hawk can travel in, *h* hours. Then, write an equation to find the total distance, *d* that a hawk can travel in, *h* hours while in normal flight. Graph the results on a coordinate grid.



Hours, *h*	1	2	3	4
Distance, *d*	10			

_____