Name _____

Reteaching
9-1

Understanding Ratios

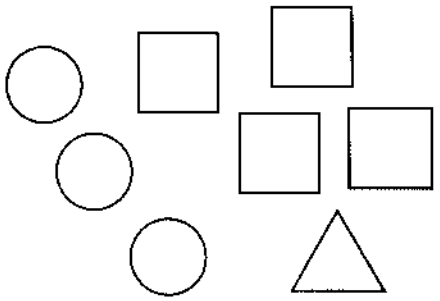
A ratio is a pair of numbers that compares two quantities.

Count to find the ratio of squares to circles.

4 to 3

The ratio 4 to 3 can also be written as 4:3 or $\frac{4}{3}$.

The order of the numbers in a ratio is important.
4:3 is the ratio of squares to circles.
3:4 is the ratio of circles to squares.



Use the picture above for exercises **1** through **6.** Write a ratio for each comparison in three ways.

1. The number of triangles to the total number of shapes

1 to 8

1:8; $\frac{1}{8}$

2. The number of squares to the number of triangles

4 to 1; 4:1; $\frac{4}{1}$

3. The number of triangles to the number of squares

1 to 4; 1:4; $\frac{1}{4}$

4. The number of triangles to the number of circles

1 to 3; 1:3; $\frac{1}{3}$

5. The number of circles to the total number of shapes

3 to 8; 3:8; $\frac{3}{8}$

6. The total number of shapes to the number of squares

8 to 4; 8:4; $\frac{8}{4}$

7. There are 14 boys and 16 girls in Mr. Allen's class. What is the ratio of girls to the total number of students in the class? Write the ratio 3 ways.

16 to 30; 16:30; $\frac{16}{30}$

8. Writing to Explain At a cat and dog hospital, 9 of the patients were cats, 17 were dogs. Use this fact to write two ratios. Explain what each ratio means.

Sample answer: The number of cats compared to the number of dogs is shown by the ratio 9:17. The number of dogs compared to the total number of animals is shown by the ratio 17:26.

Name _____

Practice
9-1

Understanding Ratios

A string quartet consists of 2 violins, 1 viola, and 1 cello. Write a ratio for each comparison in three ways.

1. violins to cellos — 2:1; 2 to 1; $\frac{2}{1}$
2. cellos to violas — 1:1; 1 to 1; $\frac{1}{1}$
3. violins to all instruments — 2:4; 2 to 4; $\frac{2}{4}$
4. **Number Sense** How are the ratios in Exercises 1 and 2 different from the ratio in Exercise 3?

   The ratios in Exercises 1 and 2 are comparing parts to parts; the ratio in Exercise 3 compares a part to a whole.

Midland Orchards grows a large variety of apples. The orchard contains 12 rows of Granny Smith trees, 10 rows of Fuji trees, 15 rows of Gala trees, 2 rows of Golden Delicious trees, and 2 rows of Jonathan trees. Write each ratio in three ways.

5. rows of Granny Smith trees to rows of Golden Delicious trees — 12:2; 12 to 2; $\frac{12}{2}$
6. rows of Fuji trees to the total number of rows of trees — 10:41; 10 to 41; $\frac{10}{41}$
7. A grade school has 45 students who walk to school and 150 students who ride the bus. The other 50 students are driven to school. Which shows the ratio of students who walk to school to the total number of students in the school?

   A 45:50 **B** 45:195 **C** 45:150 **D** 45:245
8. **Writing to Explain** Steve said it does not matter which term is first and which term is second in a ratio, since ratios are different than fractions. Is he correct? Explain why or why not.

   No; It does matter. If the terms are reversed, then a different comparison is being made.

Name _____

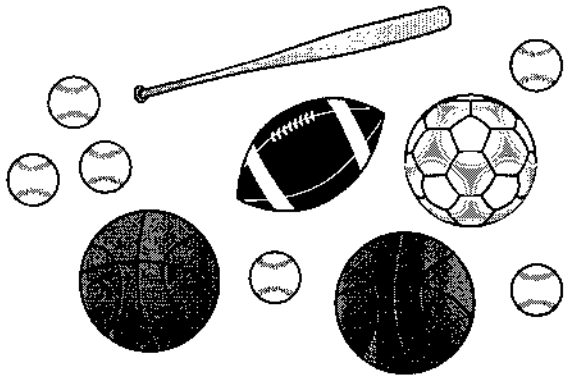
Enrichment
9-1

Take a Picture

Visual Thinking

Draw a picture to represent each of the ratios below. Your picture can show the ratio as the comparison of two parts, or as the comparison of a part to a whole. Be creative, and use a different picture for each ratio. Write a sentence that describes your picture. Here is an example.

Ratio: $\frac{6}{11}$

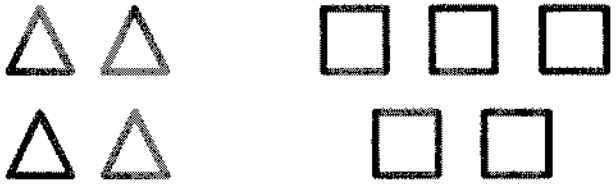


There are six baseballs and eleven pieces of sports equipment.

Sample answers are given.

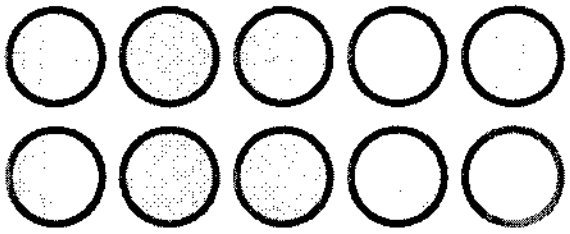
1. 4:5

There are 4 triangles and 5 squares.



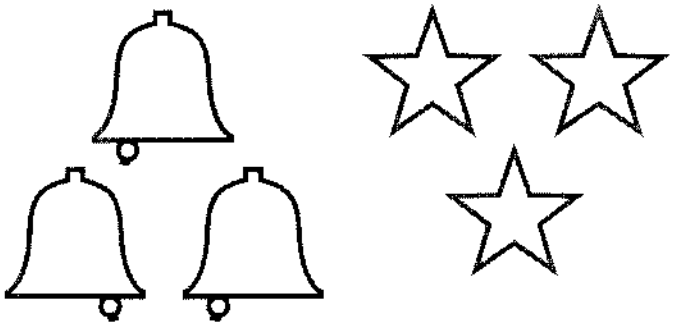
2. 9 to 1

There are 9 shaded circles and 1 unshaded circle.



3. $\frac{3}{3}$

There are 3 stars and 3 bells.



Name _____

Reteaching
9-2

Equivalent Ratios

You can find equivalent ratios just like you find equivalent fractions.

Find ratios equivalent to $\frac{30}{40}$.

Multiply both terms by the same number.

$\frac{30 \times 2}{40 \times 2} = \frac{60}{80}$

Divide both terms by the same number. To find the simplest form ratio, divide by the greatest common factor (GCF) of the two numbers.

The GCF of 30 and 40 is 10.

$\frac{30 \div 10}{40 \div 10} = \frac{3}{4}$

Two equivalent ratios form a proportion. The units must be the same in both ratios.

Do the ratios 24 ft:16 seconds and 36 ft:24 seconds form a proportion?

First check the units.

Both ratios compare feet to seconds, so the units are the same.

Then write each ratio in simplest form.

$\frac{24 \text{ ft}}{16 \text{ seconds}} = \frac{3 \text{ ft}}{2 \text{ seconds}}$

$\frac{36 \text{ ft}}{24 \text{ seconds}} = \frac{3 \text{ ft}}{2 \text{ seconds}}$

Compare the simplest form ratios. They are the same, so the ratios form a proportion.

Write three ratios that are equivalent to the ratio given. **Sample ratios are given.**

1. $\frac{3}{5}$ **$\frac{6}{10}, \frac{9}{15}, \frac{12}{20}$**
2. $\frac{4}{8}$ **$\frac{1}{2}, \frac{3}{6}, \frac{50}{100}$**
3. $\frac{6}{18}$ **$\frac{1}{3}, \frac{4}{12}, \frac{8}{24}$**
4. 8:10 **4:5, 16:20, 24:30**
5. 6:8 **3:4, 12:16, 9:12**
6. 10:12 **5:6, 20:24, 15:18**
7. 12 to 18 **4 to 6, 2 to 3, 24 to 36**
8. 16 to 18 **8 to 9, 32 to 36, 48 to 54**
9. 5 to 25 **1 to 5, 2 to 10, 3 to 15**

Write the ratios in simplest form.

10. $\frac{10}{15}$ **$\frac{2}{3}$**
11. 21 to 14 **3 to 2**
12. 15:25 **3:5**

Write = if the ratios form a proportion; if they do not form a proportion, write ≠.

13. $\frac{15}{18}$ (=) $\frac{10}{12}$
14. 20:24 (≠) 24:30
15. 16 to 20 (=) 28 to 35

16. **Number Sense** Dale says that the ratios 3:5 and 2:10 are equivalent. Is he correct? Explain. **Sample answer:**

No, 2:10 simplifies 1:5. 3:5 is not equal to 1:5.

Name _____

Practice
9-2

Equivalent Ratios

Write three ratios that are equivalent to the ratio given. **Sample ratios are given.**

1. $\frac{8}{10}$ $\frac{4}{5}, \frac{16}{20}, \frac{24}{30}$
2. $\frac{2}{3}$ $\frac{4}{6}, \frac{8}{12}, \frac{6}{9}$
3. $\frac{3}{4}$ $\frac{12}{16}, \frac{15}{20}, \frac{6}{8}$
4. 21 to 18 7 to 6, 42 to 36, 63 to 54
5. 5 to 4 10 to 8, 15 to 12, 20 to 16
6. 1 to 3 2 to 6, 3 to 9, 4 to 12
7. 14:16 7:8, 28:32, 42:48
8. 2:4 3:6, 4:8, 1:2
9. 2:5 4:10, 6:15, 8:20

Write = if the ratios form a proportion; if they do not form a proportion, write ≠.

10. 3:12 (=) 6:24
11. $\frac{14}{16}$ (≠) $\frac{7}{4}$
12. 4 to 20 (≠) 1 to 4

Find the number that makes the ratios equivalent.

13. $\frac{8}{9} = \frac{32}{36}$
14. 15:18 = 5: 6
15. 3 to 7 = 9 to 21

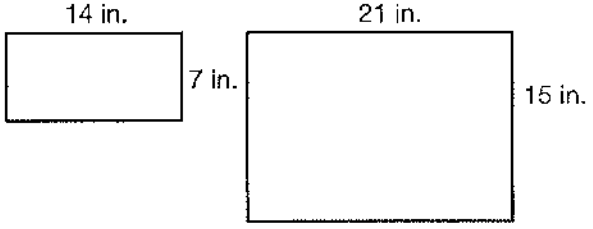
Write the ratios in simplest form.

16. $\frac{42}{28}$ $\frac{3}{2}$
17. 21 to 36 7 to 12
18. 15:45 1:3
19. $\frac{35}{25}$ $\frac{7}{5}$
20. 60 to 30 2 to 1
21. 10:40 1:4

22. **Writing to Explain** Tell why you cannot multiply or divide by zero to find equivalent ratios.

Any number multiplied by zero is zero. You cannot divide by zero.

23. **Geometry** Is the ratio of length to width for these two rectangles proportional? Tell how you know.



No. $\frac{7}{14} = \frac{1}{2}$, $\frac{15}{21} = \frac{5}{7}$.

Simplest forms are not equal.

24. **Algebra** Which value for x would make the ratios equivalent?
$\frac{3}{8} = \frac{x}{32}$

A $x = 4$

B $x = 6$

C $x = 8$

(D) $x = 12$

Name _____

Enrichment
9-2

What's My Rule?

Determine the pattern in each set of equivalent ratios. Write the next three ratios for each set. Write the rule.

Patterns

1. 3:6, 6:12, 12:24, 24:48 , 48:96 , 96:192

   Multiply both numbers by 2.

2. $\frac{4,000}{2,400}, \frac{2,000}{1,200}, \frac{1,000}{600}$, $\frac{500}{300}$, $\frac{250}{150}$, $\frac{125}{75}$

   Divide both numbers by 2.

3. 5:3, 15:9, 45:27, 135:81 , 405:243 , 1,215:729

   Multiply both numbers by 3.

4. 6 to 2, 30 to 10, 150 to 50, 750 to 250 ,

   3,750 to 1,250 , 18,750 to 6,250

   Multiply both numbers by 5.

5. 200:160, 100:80, 50:40, 25:20 , $12\frac{1}{2}$:10 , $6\frac{1}{4}$:5

   Divide both numbers by 2.

6. $\frac{5}{1}, \frac{20}{4}, \frac{80}{16}$, 320:64 , 1,280:256 , 5,120:1,024

   Multiply both numbers by 4.

7. 2,500 to 3,125, 500 to 625, 100 to 125 20 to 25 ,

   4 to 5 , $\frac{4}{5}$ to 1

   Divide both numbers by 5.

Name _____

Reteaching
9-3

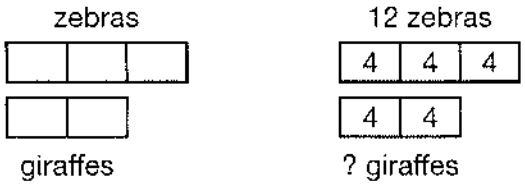
Modeling Ratios

You can use a diagram to solve problems about ratios.

A zoo has 3 zebras for every 2 giraffes. How many giraffes does the zoo have if it has 12 zebras? Draw a diagram to solve the problem.

Draw rectangles to model the ratio 3 zebras to 2 giraffes.

Divide the number of zebras into 3 equal parts to find how many animals each part represents. $12 \div 3 = 4$



Then multiply the number of parts for the giraffes times 4 animals per part to find the number of giraffes.

$4 \times 2 = 8$

The zoo has 8 giraffes.

Draw a diagram to help you solve each problem. **Check students' diagrams.**

1. One exhibit at the zoo has 7 birds for every 2 mammals. If there are 10 mammals in the exhibit, how many birds are there?
   35 birds

2. There are 5 children for every 3 adults who visit the zoo. If there are 30 children at the zoo, how many adults are there?
   18 adults

3. The monkeys get fed 6 buckets of vegetables for every 2 buckets of cereal. How many buckets of vegetables do the monkeys get fed if they get 8 buckets of cereal?
   24 buckets

4. It takes 8 minutes for the train to fill 3 cars with people from the zoo. How long does it take the train to fill 18 cars of people from the zoo?
   48 minutes

5. **Writing to Explain** Arlen buys 2 small cups of food for the animals for 5 tokens. Explain how to use a diagram to find how many cups of food Arlen could buy for 20 tokens.
   Make a diagram showing the ratio 2 to 5. Complete it to show 20 tokens to ? cups. 20 = 5 × 4, so Arlen could buy 4 × 2 = 8 cups of food.

Name _____

Practice
9-3

Modeling Ratios

In **1** through **8**, draw a diagram to solve the problem.

Check students' diagrams.

1. Sam puts 3 tulips and 4 lilacs in each vase. How many lilacs does Sam use if he puts 36 tulips into vases?

   48 lilacs

2. Seven students ride the bus to school for every 2 students who walk. If there are 105 students who ride the bus, how many students walk?

   30 students walk

3. A golf store is having a special, giving away 10 free golf tees for every box of 3 golf balls a customer buys. If a customer buys 24 golf balls, how many golf tees does she get?

   80 golf tees

4. Sarah's family has an apple orchard. The family sells 8 baskets of apples for every 3 jars of applesauce. How many baskets of apples do they sell if they sell 120 jars of applesauce?

   320 baskets

5. Martin enjoys hiking on rural trails near his home in Michigan. He can hike 6 miles in 2 hours. How long would it take Martin to hike 24 miles?

   8 hours

6. The coach mixes 15 scoops of powder with 2 gallons of water to make a sports drink for his team. How many scoops of powder does the coach need to mix with 10 gallons of water?

   75 scoops

7. A 4-pound bag of potatoes costs $3.16. How much would 32 pounds of potatoes cost?

   $25.28

8. Ali packs 54 cans into 3 boxes to ship. How many boxes of the same size will Ali need to ship 324 cans?

   18 boxes

9. **Algebra** Which value of p makes the ratios equivalent?

   $\frac{5}{7} = \frac{p}{56}$

   A 8 **B** 13 **C** 40 **D** 64

10. **Writing to Explain** There are 4 girls to every 3 boys on the school's track team. Explain how to use a diagram to find how many members are on the track team if there are 16 girls on the team.

    Make a diagram showing the ratio 4 girls to 3 boys. Complete it to show 16 girls. There are 12 boys on the team, so there are 16 + 12 = 28 members on the team.

Name _____

Enrichment
9-3

Representing Ratios

Number Sense

Survey results:

What is your favorite flavor of ice cream?	
Vanilla	36
Chocolate	44
Strawberry	20

1. What is the ratio of people who prefer chocolate to those who took the survey? Write the ratio in simplest form. $\frac{44}{100} = \frac{11}{25}$

2. The survey concluded that two out of five people preferred strawberry ice cream. Is that correct? Explain.

   No, 20 out of 100 can be simplified as 1 out of 5.

3. Sylvia has 12 bracelets and 27 necklaces. What is the ratio of bracelets to necklaces? Write the ratio in simplest form. $\frac{12}{27} = \frac{4}{9}$

Survey results:

Where should the next field trip take place?	
San Diego Zoo	28
Birch Aquarium	12
Whale-Watching Excursion	36

4. The sixth-grade classes voted on three possible field trips. What is the ratio of students who selected the whale-watching excursion to the total number of students who took the survey? Write the ratio in simplest form. $\frac{36}{76} = \frac{9}{19}$

5. The survey verified that seven out of 19 students wanted to go to the San Diego Zoo. Is that correct? Explain.

   Yes, 28 out of 76 can be simplified as 7 out of 19.

Name _____

Reteaching
9-4

Using Ratio Tables

A ratio table showing equivalent ratios can be used to solve a proportion.

Ross uses 11 skeins of yarn to make 4 scarves. How many scarves can he make from 66 skeins of yarn?

Write a proportion. Use x for the number of scarves.

$$\frac{4 \text{ scarves}}{11 \text{ skeins}} = \frac{x \text{ scarves}}{66 \text{ skeins}}$$

Make a ratio table. Multiply or divide to find equivalent ratios. Find ratios equivalent to $\frac{4}{11}$ by multiplying both terms of the ratio by the same number until you find 66 skeins.

Number of scarves	4	8	12	16	20	24
Number of skeins	11	22	33	44	55	66

$$\frac{4 \text{ scarves}}{11 \text{ skeins}} = \frac{24 \text{ scarves}}{66 \text{ skeins}}$$

So, Ross can make 24 scarves from 66 skeins of yarn.

Answer the question and complete each ratio table. **In 2–4, sample answers are given in the table.**

1. $\frac{\$25}{125 \text{ min}} = \frac{\$200}{1{,}000 \text{ min}}$

Number of dollars	200	100	50	25
Number of minutes	1,000	500	250	125

2. $\frac{36 \text{ batteries}}{9 \text{ flashlights}} = \frac{12 \text{ batteries}}{3 \text{ flashlights}}$

Number of batteries	12	24	36	
Number of flashlights	3	6	9	

3. $\frac{900 \text{ ft}}{800 \text{ h}} = \frac{9 \text{ ft}}{8 \text{ h}}$

Number of feet	9	90	900	
Number of hours	8	80	800	

4. $\frac{4 \text{ carts}}{16 \text{ horses}} = \frac{16 \text{ carts}}{64 \text{ horses}}$

Number of carts	4	8	12	16
Number of horses	16	32	48	64

5. Laine was practicing her free throws. She shot nine times and made five baskets. At this ratio, how many times will she need to shoot to make 35 baskets?

63 times

6. Hiram said that he can use the same ratio table to solve the two proportions below. Do you agree or disagree with Hiram?

$$\frac{8 \text{ cows}}{2 \text{ pigs}} = \frac{c \text{ cows}}{10 \text{ pigs}} \qquad \frac{2 \text{ pigs}}{8 \text{ cows}} = \frac{10 \text{ pigs}}{c \text{ cows}}$$

Sample answer: I agree with Hiram.

Name _____

Practice
9-4

Using Ratio Tables

Complete the ratio table. Add columns if needed.

1. $\frac{3 \text{ hops}}{5 \text{ jumps}} = \frac{\boxed{9} \text{ hops}}{15 \text{ jumps}}$

Number of hops	3	6	9
Number of jumps	5	10	15

Sample answers in table.

2. $\frac{\$60}{2 \text{ weeks}} = \frac{\$240}{\boxed{8} \text{ weeks}}$

Number of dollars	60	120	180	240
Number of weeks	2	4	6	8

Sample answers in table.

3. $\frac{12 \text{ cans}}{7 \text{ bottles}} = \frac{60 \text{ cans}}{\boxed{35} \text{ bottles}}$

Number of cans	12	24	36	48	60
Number of bottles	7	14	21	28	35

Sample answers in table.

4. How many cups of loam are needed to make 66 c of potting soil? 18 c

5. How many cups of humus are needed to make 11 c of potting soil? $1\frac{1}{2}$ c

6. Sondra uses 78 c of loam to make potting soil. How many cups of humus did she use ? 39 c

Potting Soil for Ferns (Makes 22 c)
- 6 c sand
- 6 c loam
- 9 c peat moss
- 3 c humus
- 1 c dried cow manure

7. It takes Renaldo 8 hours to make 7 carvings. How many hours will it take him to make 63 carvings?

   A $7\frac{7}{8}$ hours

   B 9 hours

   C 56 hours

   (D) 72 hours

8. **Writing to Explain** Find three sets of values for x and y to make $\frac{x \text{ mi}}{y \text{ min}} = \frac{4 \text{ mi}}{32 \text{ min}}$ a proportion. Explain how you found the values.

Sample answer: $\frac{2 \text{ mi}}{16 \text{ min}}, \frac{8 \text{ mi}}{64 \text{ min}}, \frac{12 \text{ mi}}{96 \text{ min}}$.

I made a ratio table and used equal ratios to find the values.

Name _____

Enrichment
9-4

Bakers' Dozen

Reasoning

The Baker family is making muffins. Each member of the family adds something to or subtracts something from the mixing bowl. Use the clues below to find the order in which each member adds to or subtracts from the mix. Write the numbers from 1 to 6 on the line to the left of each quotation.

6 "I poured the mix into baking cups and put them in the oven."

Mrs. Baker

1 "I measured 2 c of flour and 2 tsp of baking powder and put them into a mixing bowl."

Mr. Baker

3 "I added $\frac{3}{4}$ c of brown sugar and $1\frac{1}{4}$ tsp of vanilla."

Barbara

5 "I took $\frac{1}{4}$ of the mix out of the bowl to bring to school."

Ronald

2 "I added $\frac{1}{2}$ tsp of salt, $\frac{1}{2}$ c of butter, and 2 eggs before the blueberries were added."

Sierra

4 "I added 2 c of blueberries right after the brown sugar was added."

Jane

Read these clues, and then write the name of the family member who made each statement above in the blank that follows each statement.

- The members of the Baker family are Mr. and Mrs. Baker, Jane, Barbara, Ronald, and Sierra.
- Sierra added something to the mix before anyone added fruit or sugar.
- The mix was not started by a female.
- Jane did not put the muffins in the oven.
- Barbara added two items to the mix.
- Ronald was the fifth person to add or subtract something from the mix.

Name _____

Reteaching
9-5

Ratios and Graphs

You can make or complete a table of equivalent ratios and graph the values on a coordinate grid.

Complete the table to show equivalent ratios for $\frac{3}{4}$.

3	6	9	12
4			

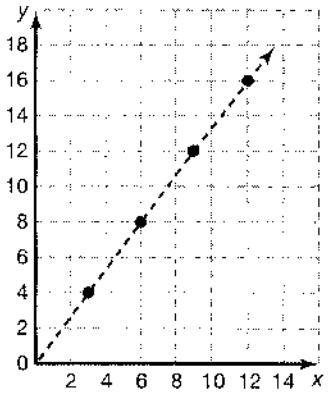
To complete the table, find fractions that are equal to $\frac{3}{4}$ that have numerators of 6, 9, and 12.

$$\frac{3 \times \mathbf{2}}{4 \times \mathbf{2}} = \frac{6}{8} \qquad \frac{3 \times \mathbf{3}}{4 \times \mathbf{3}} = \frac{9}{12} \qquad \frac{3 \times \mathbf{4}}{4 \times \mathbf{4}} = \frac{12}{16}$$

The missing values in the table are the denominators of the equal fractions. The values are: 8, 12, and 16.

Graph the equivalent ratios on a coordinate grid. Use an appropriate scale for the *x* and *y* axes.

Plot the points for each ratio, *x* to *y*. Draw a dashed line from (0, 0) through the points extending through the final point.



Complete the table to show equivalent ratios. Graph the set of equal ratios on a coordinate grid. **Check students' graphs.**

1.

2	4	6	8	10
3	**6**	**9**	**12**	**15**

2.

1	2	3	4	5
2	**4**	**6**	**8**	**10**

3.

3	6	9	12	15
5	**10**	**15**	**20**	**25**

4.

2	6	12	18	24
7	**21**	**42**	**63**	**84**

5.

4	12	16	48	60
12	**36**	**48**	**144**	**180**

6.

6	18	24	36	48
9	**27**	**36**	**54**	**72**

7.

5	15	25	35	45
8	**24**	**40**	**56**	**72**

8.

1	5	8	10	15
7	**35**	**56**	**70**	**105**

Name _____

Practice
9-5

Ratios and Graphs

For **1** through **6**, complete the table to show equivalent ratios.

1.

4	8	12	16	20
3	6	9	12	15

2.

4	2	8	12	16
6	3	12	18	24

3.

10	20	30	40	70
7	14	21	28	49

4.

3	6	12	18	36
2	4	8	12	24

5.

6	12	24	48	60
11	22	44	88	110

6.

12	4	24	36	48
3	1	6	9	12

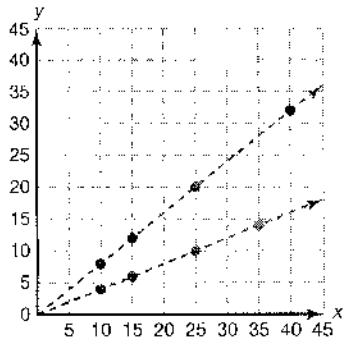
For **7** and **8**, complete the table to show equivalent ratios, and graph the pairs of values on the coordinate grid.

7.

5	10	15	25	40
4	8	12	20	32

8.

5	10	15	25	35
2	4	6	10	14



9. Writing to Explain How are the graphs of the ratios in Exercises 7 and 8 alike, and how are they different?

They both are straight lines, and the line for $\frac{5}{4}$ is steeper than the line for $\frac{5}{2}$.

10. A birdwatcher counted 7 robins for every 4 sparrows. Complete the table to show how many robins she counted if she counted 24 sparrows in a weekend. On a separate piece of graph paper, graph the values on a coordinate grid.

4	8	12	16	20	24
7	14	21	28	35	42

Check students' graphs.

Name _____

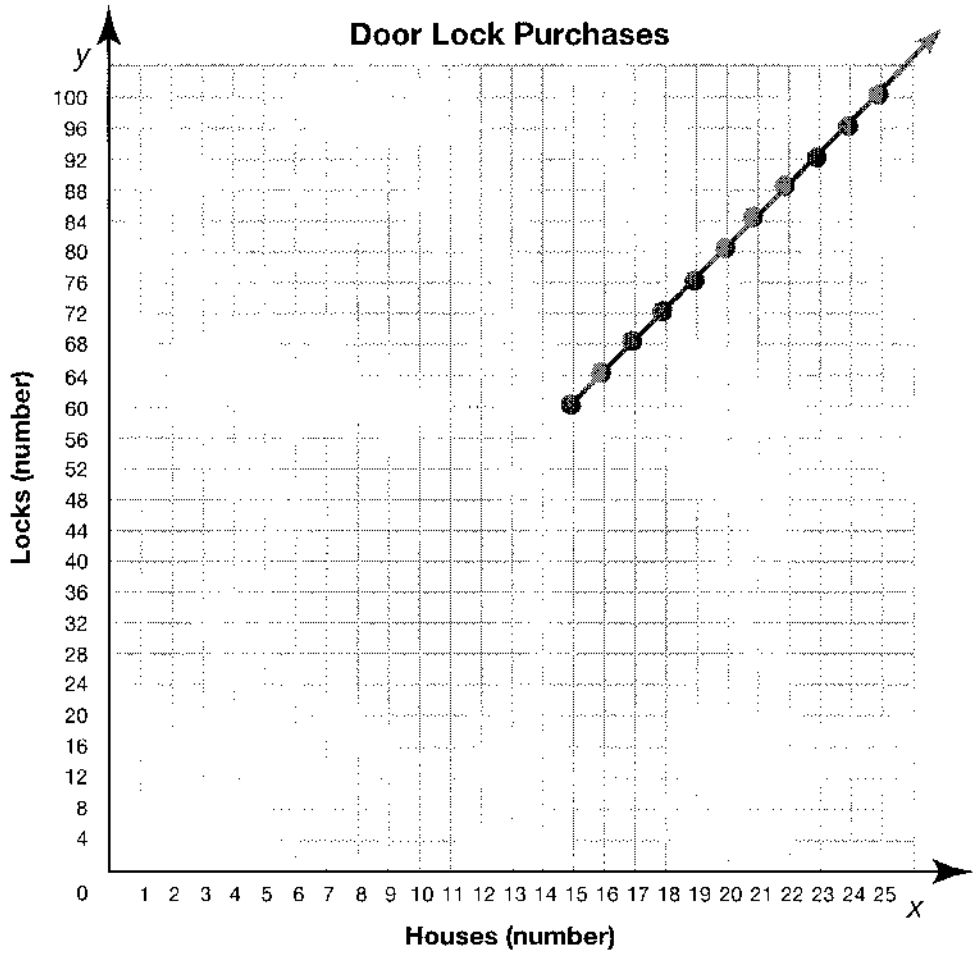
Enrichment
9-5

Gridlock

In a new housing development, the builder has to figure out how many door locks she needs to buy. She will build between 15 and 25 houses. Each house has a lock for the front and back doors, the patio door, and the garage door. How many locks does she need?

The equation for the number of locks needed for houses would be $4h = \ell$. If the builder has to buy enough locks for 15 houses, she would multiply $15 \times 4 = 60$; $h = 15$, $\ell = 60$. Complete the table to find the number of locks needed for the remaining houses through 25. Plot the points and graph the line.

1. Graph the equation $4h = \ell$.



$4h = \ell$	
h	ℓ
15	60
16	64
17	68
18	72
19	76
20	80
21	84
22	88
23	92
24	96
25	100

Name _____

Reteaching
9-6

Problem Solving: Draw a Picture

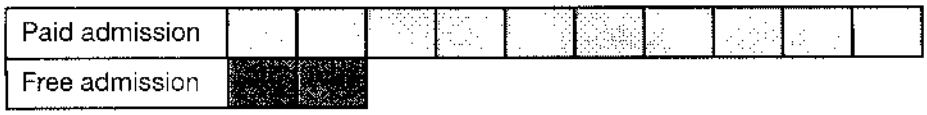
Veronica is celebrating her birthday by having a skating party. As part of a birthday special, Veronica paid for 10 tickets and 2 guests received free admission. What fraction of the people at Veronica's party were not charged for admission?

Read and Understand

What do you know? There were 10 paid admissions and 2 free admissions.
What are you trying to find? The fraction of people attending Veronica's party that were admitted at no charge.

Plan and Solve

What strategy will you use? Draw a picture to show the 10 paid admissions and the 2 free admissions.
Count the boxes. There were 12 people admitted. Since 2 of the 12 people were admitted at no charge, the fraction is $\frac{2}{12}$, or $\frac{1}{6}$ in simplest form.

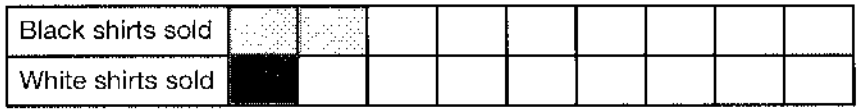


Look Back and Check

Is your answer reasonable? Yes. The picture shows 2 out of 12 boxes, which is $\frac{2}{12}$, or $\frac{1}{6}$.

Draw or use a picture to solve each problem.

One afternoon, the ratio of black shirts sold to white shirts sold at The Clothes Horse was 2:1. Complete the picture to show the ratio.



1. How many boxes are shaded in all?

   3 boxes

2. What fraction of the shirts sold were black?

   $\frac{2}{3}$

3. The Clothes Horse sold 12 shirts that afternoon. How many black shirts were sold? HINT: YOU CAN ADD TO THE PICTURE UNTIL THERE ARE 12 SHADED BOXES TO REPRESENT THE PROBLEM.

   8 black shirts

4. Ilene earns $20. She saves $2 for every $8 that she spends. How much of the $20 will she save?

   $4

Dollars Saved X X X X
Dollars Spent X X X X X X X X X X X X X X X X

Name _____

Practice
9-6

Problem Solving: Draw a Picture

Draw a picture to solve each problem.

For **1** through **3**, Pamela walks 1 mile and runs 4 miles during her daily workout.

1. What is the ratio of miles walked to miles ran during each of Pamela's workouts? **1:4**

2. What is the ratio of miles walked to total miles in each of Pamela's workouts? **1:5**

Sample drawing:

3. Pamela ran 20 miles last week. How many days did she workout? **5 days**

Sample drawing:

4. There are 5 pens with blue ink, 3 pens with red ink, and 2 pens with purple ink in each package. What fraction of the pens has blue ink?

Sample drawing:

A 5

B $\frac{5}{5}$

C $\frac{5}{8}$

(D) $\frac{1}{2}$

5. There are 18 baseballs and basketballs in one gym storage locker. There are 3 baseballs for every 6 basketballs in the locker. How many basketballs are in the locker? **12 basketballs**

Sample drawing:

6. **Writing to Explain** Rasheed takes photographs with a digital camera. He estimates that for each photograph he prints, he has 5 photographs that he never prints. How many photographs has Rasheed taken if he makes 4 prints? Explain how drawing a picture can help you solve the problem. Then solve.

24 photographs; Sample answer: I can show the ratio of 1:5, then continue my picture using that ratio until I show 4 photos printed. Then I can count the number of photographs printed and the number not printed to find the total.

Sample drawing:

Photographs printed X X X X

Photographs not printed XXXXXXXXXXXXXXXXXXXX

Name _____

Enrichment
9-6

Speeding Planets

Data

Every planet in our solar system travels around the Sun at a different speed. Complete the table below to show the distance each planet travels per day, per hour, and per Earth year. There are 8,760 hours in one Earth year.

	Planet	km/sec	km/min	km/hour	km/Earth Year
1.	Earth	30	1,800	108,000	946,080,000
2.	Jupiter	13.1	786	47,160	413,121,600
3.	Mars	24.1	1,446	86,760	760,017,600
4.	Mercury	47.9	2,874	172,440	1,510,574,400
5.	Neptune	5.4	324	19,440	170,294,400
6.	Saturn	9.7	582	34,920	305,899,200
7.	Uranus	6.8	408	24,480	214,444,800
8.	Venus	35	2,100	126,000	1,103,760,000

9. After you have completed the table, number the planets 1 through 8 according to their speed. 1 is the fastest and 8 is the slowest. The order of the speed of the planets is the same as the order of their distance from the Sun.

EARTH	JUPITER	MARS	MERCURY	NEPTUNE	SATURN	URANUS	VENUS
3	5	4	1	8	6	7	2