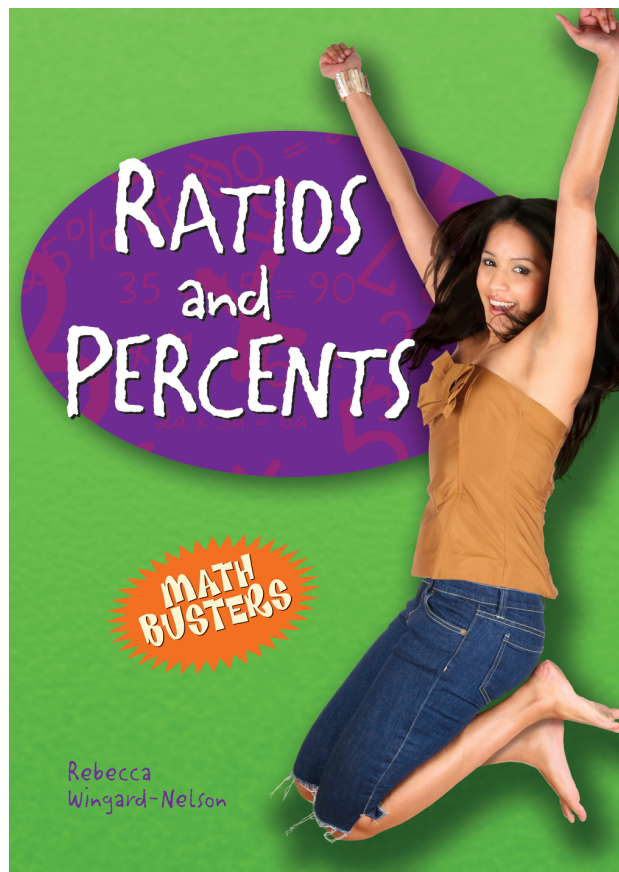


Math Busters Reproducible Worksheets

Reproducible Worksheets
for:

Ratios and Percents

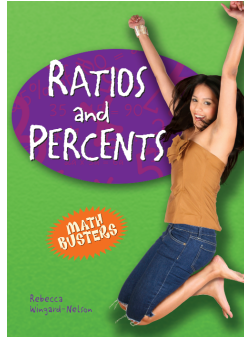


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Math Busters Reproducible Worksheets

Reproducible Worksheets for:

Ratios and Percents



These worksheets practice math concepts explained in **Ratios and Percents** (ISBN: 978-0-7660-2875-3), written by **Rebecca Wingard-Nelson**.

Math Busters Ratios and Percents reproducible worksheets are designed to help teachers, parents, and tutors use the books from the Math Busters series in the classroom and the home. The answers to the problems are contained in the Answers section starting on page 59.

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Name _____

Date _____

Ratios

- a. The numbers in a ratio are called _____ .
- b. Write a ratio using 5 as the second term and 1 as the first term.
- c. Pheasant Lane Farm has 7 horses. 4 of the horses are black. Using the word "to", write the ratio of black horses to total horses. _____
- d. In a class of 33 students, 10 love math. Using a colon, write the ratio of students who love math to total students in the class. _____
- e. The track team has 95 members. Of those, 59 are girls. Using a fraction bar, write the ratio of girls to the total team. _____

A used car lot has 8 trucks and 17 sedans.

Express each of the following ratios in three ways: using the word "to"; using a colon; and using a fraction bar.

- f. Trucks to sedans _____
- g. Sedans to total vehicles _____
- h. Sedans to trucks _____
- i. Trucks to total vehicles _____

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Name _____

Date _____

Ratios

a. In the ratio 8:9, what is the first term? _____

b. In the ratio 6 to 2, what is the second term? _____

In a group of 16 people, 3 were lefthanded, and the others were righthanded. Write a ratio for each of the following.

c. Lefthanded to righthanded _____

d. Righthanded to total _____

The chorus is wearing red and blue shirts for a concert. Use the table to find each of the following ratios.

	BOYS	GIRLS
RED	5	8
BLUE	4	4

e. Boys in red to girls in red _____

f. Girls in blue to boys in blue _____

g. Boys to girls _____

h. Girls to total chorus _____

i. Total chorus to boys in red _____

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Name _____

Date _____

Equivalent Ratios

Write two ratios that are equivalent to the given ratio.

a. $\frac{2}{3}$

b. $\frac{6}{8}$

c. 3:1

d. 2:5

e. 12:3

f. 5:25

g. 10 to 100

h. 10 to 20

- i. A cat breathes about 25 times each minute.
A dog breathes about 20 times per minute.
What is the ratio of dog breaths to cat breaths?

Write an equivalent ratio for dog breaths to cat breaths. _____

- j. Tibby planted 8 tomato plants and 4 pepper plants in her garden. What is the ratio of tomato plants to pepper plants? _____
- Write an equivalent ratio for tomato plants to pepper plants. _____

- k. In one game, Cinda made 4 of the 6 goals for her field hockey team. What is the ratio of Cinda's goals to the total teams goals? _____
- Write an equivalent ratio for Cinda's goals to the total teams goals. _____

Name _____

Date _____

Equivalent Ratios

Write two ratios that are equivalent to the given ratio.

a. $\frac{9}{3}$

b. $\frac{10}{1}$

c. 4:2

d. 20:4

e. 18:12

f. 100:25

g. 8 to 1

h. 27 to 9

- i. A penguin can swim 15 miles in one hour.
A dolphin can swim 24 miles in one hour.
What is the ratio of how far a penguin can swim in one hour to how far a dolphin can swim in one hour?

Write this as an equivalent ratio. _____

- j. In a Monopoly game, Joshua bought 12 of the 28 properties. What is the ratio of Joshua's properties to all of the properties? _____
- Write this as an equivalent ratio. _____

- k. A club sold 360 total cases of oranges and grapefruit. Of these, 90 cases were grapefruit. What is the ratio of cases of grapefruit to cases of oranges? _____
- Write this as an equivalent ratio. _____

Name _____

Date _____

Reducing Ratios

- List the factors of 20. _____
- List the factors of 24. _____
- List the common factors of 20 and 24. _____
- What is the greatest common factor of 20 and 24? _____

Reduce each ratio to lower terms.

e. 40:28

f. 24:30

g. 12:18

Reduce each ratio to lowest terms.

h. 24 to 32

i. 35 to 42

j. 15 to 45

- Steve worked on a project for 64 hours.
Terri worked on the same project for 48 hours.
Write the ratio of Steve's hours to Terri's hours in lowest terms.

- Rick made 65 tacos for 15 people.
Write the ratio of tacos to people in lowest terms.

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Name _____

Date _____

Reducing Ratios

- List the factors of 32. _____
- List the factors of 96. _____
- List the common factors of 32 and 96. _____
- What is the greatest common factor of 32 and 96? _____

Reduce each ratio to lower terms.

e. 32:96

f. 64:80

g. 20:300

Reduce each ratio to lowest terms.

h. 21 to 12

i. 96 to 108

j. 132 to 144

- Manuel did 25 math problems. He had 20 correct answers. In lowest terms, what is the ratio of correct problems to total problems?

- Ivan pays \$1,200 a month for rent. He earns \$3,600 each month. In lowest terms, what is the ratio of his rent to his income?

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Name _____

Date _____

Rates

Write each rate in simplest form.

- a. John traveled 585 miles in 9 hours.
What was his speed?

- b. Tamua traveled 240 miles and used 8 gallons of fuel.
What was her fuel mileage?

- c. Anita bought 2 lbs of bologna for \$6.
Write the price per pound as a rate.

- d. Bill worked 12 hours. He was paid \$360. What is his pay rate?

- e. Dale bought 3 gallons of paint for \$12.
Write the cost per gallon as a rate.

- f. An airplane flew 4,800 km in 6 hours.
What was the average speed?

- g. An orchestra rented 27 hotel rooms for its players at a total cost of \$2,106. Write the cost per room as a rate.

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Name _____

Date _____

Rates

Write each rate in simplest form.

- a. Edna was walking the Oregon Trail. In one day she walked 27 miles. It took her 9 hours. What was her average speed?

- b. A bale of hay costs \$2.75. Write a rate for the price per pound if a bale weighs 55 lbs.

- c. Annette flew 2,000 miles to visit her mother. The trip took 8 hours. What was her speed?

- d. One weekend Holmes worked 9 hours and was paid \$45. Write his hourly pay rate.

- e. Kammal rode his bike 2 miles in half an hour. What was his average speed?

- f. Geoffry bought 2.5 lbs of cheese for \$10. Write the cost per pound?

- g. Katie typed a 600 word paper in 20 minutes. What was her typing speed per minute?

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Name _____

Date _____

Ratios and Fractions

- a. List the first six multiples of 3. _____
- b. List the first six multiples of 5. _____
- c. What is the least common multiple of 3 and 5? _____
- d. List the first six multiples of 4. _____
- e. List the first six multiples of 10. _____
- f. What is the least common multiple of 4 and 10? _____

Write each ratio as a whole number ratio.

Example: $\frac{7}{2}$ to $\frac{1}{4}$

Step 1: Find the least common multiple (LCM) of the denominators.

Step 2: Multiply each term by the LCM.

Step 3: Reduce.

Multiples of 2: 2, 4, 6, ...
 Multiples of 4: 4, 8, 12, ...
 LCM = 4

$$\frac{7}{\cancel{2}} \times \frac{4^2}{1} \text{ to } \frac{1}{\cancel{4}} \times \frac{4^1}{1}$$

$$\frac{14}{1} \text{ to } \frac{1}{1}$$

$$\frac{14}{1} \text{ to } \frac{1}{1}$$

$$\textcircled{14 \text{ to } 1}$$

g. $\frac{1}{3}$ to $\frac{5}{6}$

h. $\frac{1}{5}$ to $\frac{2}{7}$

i. $\frac{1}{2}$ to $\frac{3}{10}$

Name _____

Date _____

Ratios and Fractions

Write each ratio as a whole number ratio.

a. $\frac{9}{10}$ to $\frac{1}{5}$

b. $\frac{3}{8}$ to $\frac{3}{12}$

c. $\frac{2}{3}$ to $\frac{1}{7}$

d. $4\frac{1}{8}$ to $\frac{3}{8}$

e. $1\frac{1}{5}$ to $\frac{5}{6}$

f. $\frac{7}{9}$ to $2\frac{3}{4}$

g. $2\frac{1}{2}$ to $1\frac{2}{3}$

h. $\frac{5}{12}$ to $\frac{7}{10}$

i. $\frac{3}{4}$ to $1\frac{1}{8}$

- j. Jennifer has $3\frac{1}{2}$ inches of blue ribbon and 12 inches of green ribbon. Write a whole number ratio of the length of blue ribbon to the length of green ribbon.

Name _____

Date _____

Ratios and Decimals

Multiply each decimal by the given power of ten.

Decimal	10	100	1,000
3.752	$3.752 \times 10 =$ 37.52	375.2	3,752
a. 0.12			
b. 6.25			
c. 11.562			
d. 7.568			
e. 82.051			
f. 12.14			
g. 0.006			
h. 60.18			
i. 38.768			
j. 0.00012			
k. 22.058			
l. 4.175			
m. 8.5002			
n. 0.863			
o. 200.7			

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Name _____

Date _____

Ratios and Decimals

Write each ratio as a whole number ratio.

Example: 0.1 to 0.02

Step 1: Move the decimal point the same number of places in each term. 0.1 \rightarrow to 0.02 10 to 2

Step 2: Reduce the ratio to lowest terms. 10 to 2 = 5 to 1

a. 6 to 1.5

b. 0.24 to 1.2

c. 0.16 to 0.08

d. 4.8 to 3.2

e. 0.032 to 1.6

f. 4.2 to 7

g. 1.44 : 7.2

h. 6.5 : 1.3

i. 0.25 : 1.25

j. 0.72 : 2.4

k. 1.28 : 0.48

l. 0.5 : 0.01

Name _____

Date _____

Unit Ratios and Rates

- a. Green paint is made by mixing 3 parts yellow paint with 5 parts of blue paint. How many times as much blue paint is used as yellow paint?
- b. A grass seed mix is made of 7 lbs of rye grass seed and 5 lbs of fescue seed. How many times as much rye is used as fescue?
- c. Peregrine falcons can fly horizontally at about 54 mph. They can dive at up to 270 mph. How many times faster can the falcon dive than it can fly horizontally?
- d. A female giant squid weighs an average of 270 lbs. A male giant squid averages 150 lbs. How many times larger is the female than the male?
- e. Teresa spent \$16.50 on school supplies. She also spent \$57.75 on snacks for a party. How many times as much money did she spend on snacks as she did on school supplies?

Name _____

Date _____

Unit Ratios and Rates

- a. Paul earned \$325 for 50 hours of work.
How much does Paul earn per hour?
- b. Raul used 5 gallons of fuel to travel 117 miles.
How many miles did he travel per gallon of fuel?
- c. Beau purchased 6 pounds of meat for \$27.
What was the price per pound?
- d. Carol drove 327 miles in 5 hours.
How many miles did she average per hour?
- e. Phillip purchased 6 cans of soup for \$9.
What was the price per can?
- f. Arturo drove 276 km in 6 hours.
How many kilometers did he average per hour?

Name _____

Date _____

The Better Buy

- a. What is the unit rate for a can of vegetables when the cans cost \$3 for 5 cans? _____
- b. What is the unit rate for a can of vegetables when the cans cost \$3.30 for 6 cans? _____
- c. If the cans of vegetables in questions a and b are same size and quality, which is the better buy? _____
- d. A bottle of 60 vitamin C tablets costs \$6.00.
The same tablets are sold in a bottle of 120 tablets for \$13.20.
Which bottle is the better buy?
- e. A package of 8 hot dogs costs \$1.28.
The same hot dogs are sold in a package of 20 for \$2.80.
Which package is the better buy?
- f. Pam bought 12 quarts of fresh strawberries for \$18.
Lori paid \$8.40 at different store for 6 quarts.
Who had the better buy?
- g. What are some reasons an item with a higher unit price could be a better buy?

Name _____

Date _____

The Better Buy

- a. Corn on the cob is sold in packages of 5 ears for \$2.00. You can also buy it individually at 12 ears for \$3.00. Which is the better buy?
- b. Michelle typed 285 words in 3 minutes. Liz typed 410 words in 5 minutes. Who typed faster?
- c. Steve made 5 horseshoes in 60 minutes. Miguel made 8 horseshoes in 90 minutes. Who made the horseshoes faster?
- d. Rodger paid \$10.20 for 12 shop cloths. Bryan paid \$20.64 for 24 of the same shop cloths. Who found the better buy?
- e. A 2-liter bottle of soda costs \$1.50. A 3-liter bottle of the same soda costs \$2.28. Which is the better buy?
- f. Jameson rode his bike 8 miles in 20 minutes. Maddie rode her bike 12 miles in 30 minutes. Who rode faster?
- g. Carrie can pack 9 cases of fruit in 3 minutes. Cody can page 7 cases of fruit in 2 minutes. Who is the faster packer?

Name _____

Date _____

Distance, Rate, and Time

Find the average speed for each of the following.

- a. 500 miles in 10 hours

- b. 14 miles in 10 minutes

- c. 183 kilometers in 6 hours

- d. Write the distance formula. _____

- e. A family drove an average speed of 65 mph for 8 hours.
How far did they travel?

- f. Rebecca walked 0.5 hours at a rate of 4 mph.
How far did she walk?

- g. Nan drove for 1.5 hours at an average speed of 100 kmh.
How far did she drive?

Name _____

Date _____

Distance, Rate, and Time

Complete the table. Make sure the units match.

Example: Rate: 50 mph Time: 90 minutes

Step 1: The rate is in hours and the time is in minutes. Change minutes to hours.

$$90 \text{ minutes} = 1.5 \text{ hours}$$

Step 2: Use the distance formula.

$$\begin{aligned} \text{distance} &= \text{rate} \times \text{time} \\ \text{distance} &= 50 \text{ mph} \times 1.5 \text{ h} \\ \text{distance} &= 75 \text{ m} \end{aligned}$$

RATE	TIME	DISTANCE
a. 60 miles per hour	10.5 hours	
b. 55 miles per hour	8 hours	
c. 40 km per hour	8 hours	
d. 4 miles per hour	45 minutes	
e. 1.5 miles per hour	9 hours	
f. 60 miles per hour	60 minutes	
g. 50 miles per hour	6.2 hours	
h. 2 km per minute	30 minutes	
i. 47 km per hour	120 minutes	

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Name _____

Date _____

Proportions

Reduce the ratios to decide if they are proportional.

Example: $\frac{6}{8}$ and $\frac{2}{6}$

Step 1: Reduce each ratio
to lowest terms.

$$\frac{6}{8} = \frac{3}{4} \quad \frac{2}{6} = \frac{1}{3}$$

Step 2: Compare.

Proportional ratios are equivalent.

$$\frac{3}{4} \neq \frac{1}{3} \text{ so } \frac{6}{8} \text{ and } \frac{2}{6} \text{ are not proportional.}$$

a. $\frac{1}{9}$ and $\frac{3}{1}$

b. $\frac{4}{7}$ and $\frac{3}{6}$

c. $\frac{5}{8}$ and $\frac{10}{12}$

d. $\frac{3}{8}$ and $\frac{9}{24}$

e. $\frac{1}{3}$ and $\frac{9}{27}$

f. $\frac{5}{15}$ and $\frac{7}{21}$

g. $\frac{4}{5}$ and $\frac{4}{5}$

h. $\frac{4}{7}$ and $\frac{9}{15}$

i. $\frac{18}{3}$ and $\frac{36}{6}$

j. $\frac{6}{11}$ and $\frac{30}{55}$

k. $\frac{8}{5}$ and $\frac{15}{24}$

l. $\frac{36}{100}$ and $\frac{18}{50}$

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Name _____

Date _____

Proportions

Cross multiply to decide if each proportion is true.

Example: $\frac{3}{5} = \frac{6}{10}$

Step 1: Cross multiply. When the products are equal, the proportion is true.

$$\frac{3}{5} \times \frac{6}{10} \quad 3 \times 10 = 5 \times 6 \quad 30 = 30 \text{ so } \frac{3}{5} = \frac{6}{10} \text{ is true.}$$

a. $\frac{1}{9} = \frac{3}{1}$

b. $\frac{4}{8} = \frac{3}{6}$

c. $\frac{6}{5} = \frac{10}{12}$

d. $\frac{9}{2} = \frac{27}{6}$

e. $\frac{1}{3} = \frac{9}{27}$

f. $\frac{5}{15} = \frac{7}{21}$

g. $\frac{8}{6} = \frac{4}{3}$

h. $\frac{4}{9} = \frac{9}{20}$

i. $\frac{18}{3} = \frac{36}{6}$

j. $\frac{1}{4} = \frac{7}{28}$

k. $\frac{3}{8} = \frac{15}{24}$

l. $\frac{32}{60} = \frac{8}{15}$

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Name _____

Date _____

Solving Proportions

Use equivalent ratios to find the missing number in each proportion.

a. $\frac{1}{6} = \frac{2}{\square}$

b. $\frac{1}{8} = \frac{2}{\square}$

c. $\frac{4}{4} = \frac{2}{\square}$

d. $\frac{2}{3} = \frac{\square}{6}$

e. $\frac{3}{6} = \frac{\square}{2}$

f. $\frac{4}{16} = \frac{\square}{8}$

g. $\frac{1}{\square} = \frac{2}{12}$

h. $\frac{1}{\square} = \frac{3}{18}$

i. $\frac{2}{\square} = \frac{10}{25}$

j. $\frac{\square}{8} = \frac{12}{24}$

k. $\frac{\square}{6} = \frac{3}{2}$

l. $\frac{\square}{3} = \frac{3}{9}$

Write a proportion to solve each problem.

- m. One machine can wrap 60 candy bars in 5 minutes.
How many candy bars can it wrap in 60 minutes?

- n. Sound can travel 1 mile through the air in about 5 seconds.
How long will it take the sound of a tornado siren to reach
a home 8 miles away?

Name _____

Date _____

Solving Proportions

Use cross products to find the missing numbers.

a. $\frac{6}{4} = \frac{3}{\square}$

b. $\frac{1}{8} = \frac{2}{\square}$

c. $\frac{5}{9} = \frac{20}{\square}$

d. $\frac{8}{5} = \frac{\square}{8}$

e. $\frac{3}{6} = \frac{\square}{2}$

f. $\frac{3}{10} = \frac{\square}{8}$

g. $\frac{1}{\square} = \frac{2}{12}$

h. $\frac{4}{\square} = \frac{2}{10}$

i. $\frac{2}{\square} = \frac{10}{25}$

j. $\frac{\square}{5} = \frac{12}{24}$

k. $\frac{\square}{11} = \frac{3}{4}$

l. $\frac{\square}{6} = \frac{6}{9}$

Write a proportion to solve each problem.

- m. The water in a 10-gallon fish tank weighs about 80 pounds. About how much will the water in a 15-gallon tank weigh?

- n. Jon uses 8 ounces of chocolate to make 18 cookies. How much chocolate does he need to make 45 cookies?

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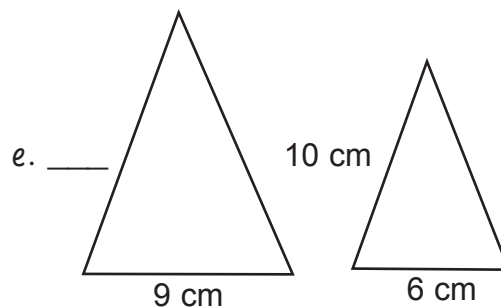
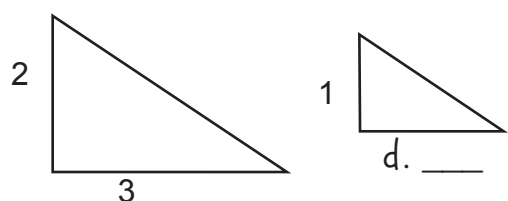
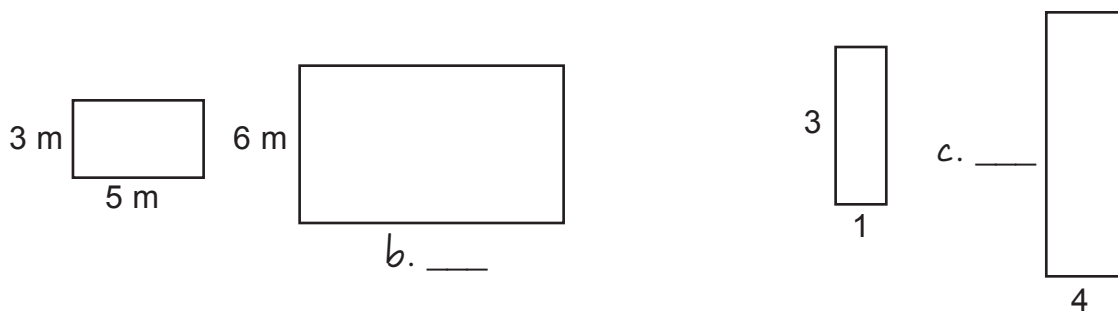
Name _____

Date _____

Ratios in Geometry

- a. In geometry, similar shapes have sides that are in the same _____.

Each of the following sets of shapes are similar. Find the missing side length.



- f. Julie and Jody have gardens that form similar rectangles. Jody's garden is 8 feet wide and 12 feet long. Julie's garden is 10 feet wide. How long is Julie's garden?

Name _____

Date _____

Ratios in Geometry

Use proportions to solve each problem. Check each answer by reducing the ratios to lowest terms.

- a. Tanya is 66 inches tall. Her shadow is 84 inches long. She is standing next to a tree that casts a 210-inch long shadow. How tall is the tree?

Check:

- b. Pablo is standing next to a statue. He is 6 feet tall. His shadow is 7 feet long. If the shadow of the statue is 28 feet long, how tall is the statue?

Check:

- c. An overhead projector projects a similar image from the projector onto a screen. An original image is 8 inches tall and 10 inches wide. If the projected image is 25 inches wide, how tall is the image?

Check:

Name _____

Date _____

Scale Drawings and Models

- a. A reduction makes a model that is _____ than the original object.
- b. An enlargement makes a model that is _____ than the original object.
- c. A _____ is a ratio that compares the measurements of a model to the measurements of the object it represents.
- d. The scale of a map is 1 inch = 50 km. If two cities are drawn 4 inches apart on the map, how far are they actually apart?
- e. A model of a dog is 4 inches tall. If the scale for the model is 1 inch = 6 inches, how tall is the dog?
- f. A square photo was reduced to fit into a small frame. The reduction is 2 cm wide. If the scale of the reduction is 1 cm = 8 cm, how wide is the original photo?

Name _____

Date _____

Scale Drawings and Models

- a. A building is 24 feet long. Cara is making a scale model of the building using a scale of 1 inch = 3 feet. How long should she make the model of the building?
- b. Callie is making a scale drawing of an aphid. The scale is 5 inches = 1 inch. If the drawing is 0.5 inches long, how long is the actual aphid?
- c. The Washington Monument is just over 555 feet tall. Souvenir shops sell a model that has a 1 inch = 37 feet scale. How tall is the model?
- d. Penny looked at a road map with a scale of 1 inch = 5 miles. She needed to drive from one town to another that is 15 inches away on the map. How far does she need to drive?

Name _____

Date _____

The Golden Ratio

Use proportions to decide if each of the following rectangles is close to a golden rectangle.

- a. A 3" by 5" card. b. A 8.5" by 11" paper.
- c. A 5" by 7" photo. d. A 2.5" by 4" cassette tape.
- e. A 6' by 2' mirror. f. A 14 cm by 12.5 cm jewelry box lid.
- g. A sign company wants to begin making billboards that are shaped as a golden rectangle. The billboards are wider than they are tall. If a billboard is 23 feet wide, about how tall should it be?
- h. The same company is making a sign that is 65 inches tall. It is taller than it is wide. About how wide should the sign be to be a golden rectangle?

Name _____

Date _____

The Golden Ratio

Use a tape measure or ruler to find each length on your own body. Use proportions to decide if the ratios are in the golden ratio. Remember, everyone's body is different, so your answers may be different than others.

- a. $\frac{\text{top of head to tip of chin}}{\text{inside of ear to inside of ear}}$

- b. $\frac{\text{bottom of foot to belly button}}{\text{bottom of foot to top of head}}$

- c. $\frac{\text{elbow to fingertips}}{\text{top of head to elbow (arms hanging down)}}$

- d. $\frac{\text{length of little finger}}{\text{length of middle finger}}$

- e. $\frac{\text{width of nose}}{\text{length of mouth}}$

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Name _____

Date _____

Alternate Proportions

Write the corresponding terms for each proportion.

Example: $\frac{3}{4} = \frac{75}{100}$ Corresponding terms: 3 and 75
4 and 100

a. $\frac{2}{5} = \frac{8}{20}$

b. $\frac{8}{4} = \frac{5}{2.5}$

c. $\frac{3}{9} = \frac{5}{15}$

d. $\frac{5}{9} = \frac{10}{18}$

e. $8 : 1 = 24 : 3$

f. $5 : 25 = 6 : 30$

Write an alternate proportion. Check the alternate proportion.

Example: $\frac{3}{4} = \frac{75}{100}$ Alternate proportion: $\frac{3}{75} = \frac{4}{100}$

Cross multiply to check: $3 \times 100 = 4 \times 75$
 $300 = 300$ True.

g. $\frac{2}{5} = \frac{8}{20}$

h. $\frac{8}{4} = \frac{5}{2.5}$

i. $\frac{3}{9} = \frac{5}{15}$

j. $\frac{5}{9} = \frac{10}{18}$

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Name _____

Date _____

Alternate Proportions

Write the corresponding terms for each proportion.

a. $\frac{7}{6} = \frac{21}{18}$

b. $\frac{6}{15} = \frac{8}{20}$

c. $12 : 9 = 4 : 3$

d. $1 : 12 = 4 : 48$

e. $5 : 10 = 8 : 16$

f. $7 : 21 = 12 : 36$

Write an alternate proportion. Check the alternate proportion.

g. $\frac{7}{6} = \frac{21}{18}$

h. $\frac{6}{15} = \frac{8}{20}$

i. $12 : 9 = 4 : 3$

j. $1 : 12 = 4 : 48$

k. $5 : 10 = 8 : 16$

l. $7 : 21 = 12 : 36$

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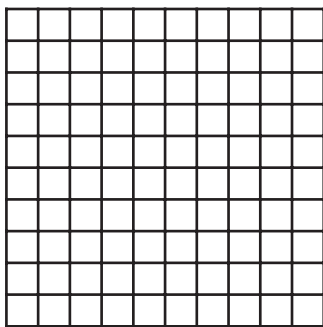
Name _____

Date _____

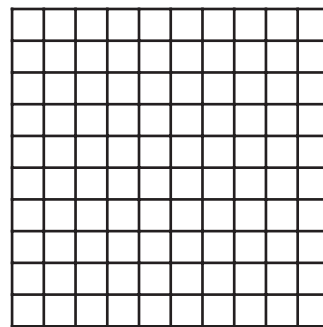
Percents and Ratios

Color each model to represent the given percent.

a. 48%



b. 72%



Write each ratio as a percent.

c. 18 to 100

d. 43 : 100

e. 150 to 100

f. 62 : 100

Write each percent as a ratio using 100 as the second term.

g. 86%

h. 73%

i. 180%

j. 40%

k. 1%

l. 55%

m. 327%

n. 0.6%

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Name _____

Date _____

Percents and Ratios

Write each ratio as a percent.

a. 16 to 100

b. 837 to 100

c. 130 : 100

d. 92 : 100

Write each percent as a ratio in lowest terms.

e. 19%

f. 853%

g. 135%

h. 25%

i. 5%

j. 70%

k. The inventory in a used car lot is 24% trucks.
What is the ratio of trucks to total used vehicles?

l. Angela had 89 out of 100 problems correct on her exam.
What percent did she have correct?

m. Jorge has 100 songs on his mp3 player. Of those, 34 songs
are country. What percent of the songs are country?

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Name _____

Date _____

Percents, Fractions, and Decimals

Write each percent as a fraction in lowest terms.

a. 86%

b. 8%

c. 340%

d. 95%

e. 53%

f. 20%

g. 143%

h. 101%

Write each percent as a decimal.

i. 86%

j. 8%

k. 340%

l. 95%

m. 53%

n. 20%

o. 143%

p. 101%

Write each decimal as a percent.

q. 0.61

r. 0.07

s. 1.25

t. 2.4

u. 0.9

v. 0.37

w. 0.75

x. 0.02

Write each fraction as a percent.

y. $\frac{3}{5}$

z. $\frac{8}{25}$

aa. $\frac{2}{4}$

bb. $\frac{1}{8}$

Name _____

Date _____

Percents, Fractions, and Decimals

Fill in the blank spaces on the table.

Percent	Decimal	Fraction
15%	a. _____	b. _____
c. _____	0.3	d. _____
e. _____	0.67	f. _____
g. _____	h. _____	$2\frac{1}{5}$
52%	i. _____	j. _____
k. _____	l. _____	$\frac{3}{40}$

m. In Bryn's barn, $\frac{7}{8}$ of the chickens are black.
What percent of the chickens are black?

n. In Bryn's barn, 50% of the goats have kids.
What fraction of the goats have kids?

o. A quarter is 25% of a dollar.
What decimal represents a quarter?

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Name _____

Date _____

Percents and Proportions

Solve the following.

Example: Find 20% of 60.

Step 1: Set up a proportion.

$$\frac{20}{100} = \frac{?}{60}$$

Step 2: Cross multiply the terms you know.

$$20 \times 60 = 1,200$$

Step 3: Divide by the term that is left.

$$1,200 \div 100 = 12$$

20% of 60 is 12.

a. Find 40% of 64.

b. Find 25% of 50.

c. Find 35% of 56.

d. Find 18% of 200.

e. A \$30 watch is marked 30% off.
How much is the savings?

f. Phillipe earns 8% of his sales. He sold \$2,560 of merchandise.
How much did he earn?

g. Paula tutors 24 students. 25% of the students are in junior high.
How many of the students are in junior high?

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Name _____

Date _____

The Percent Equation

Use the percent equation to solve the following.

Example: Find 20% of 40.

Step 1: Write the percent equation. Fill in the numbers you know.

$$\begin{aligned} \text{percent} \times \text{whole} &= \text{part} \\ 20\% \times 40 &= \text{part} \end{aligned}$$

Step 2: Write the percent as a decimal or fraction.

$$0.20 \times 40 = \text{part}$$

Step 3: Multiply.

$$\begin{aligned} 8 &= \text{part} \\ 20\% \text{ of } 40 &\text{ is } 8. \end{aligned}$$

a. Find 25% of 24.

b. Find 70% of 730.

c. Find 50% of 88.

d. Find 18% of 250.

e. Find 45% of 18.

f. Find 0.8% of 200.

g. In a class of 36 students, 25% have A's.
How many of the students have an A?

h. Jody saves 24% of her weekly pay. She earns \$98 each week. How much does she save each week?

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Name _____

Date _____

The Percent Equation

Use the percent equation to solve the following.

a. Find 42% of 150.

b. Find 3% of 64.

c. Find 12.5% of 256.

d. Find 20% of 620.

e. Find $\frac{1}{3}\%$ of 900.

f. Find $\frac{1}{4}\%$ of 1,600.

g. A band has 96 members. 37.5% of the members play a woodwind instrument. How many members play a woodwind?

h. An airport had 80 planes land in one day. Of those, 75% were cargo planes. How many of the planes were cargo planes?

i. Rebecca spent \$15 on a meal. She left tip that was 15% of the meal price. How much did she leave as a tip?

Name _____

Date _____

Percents Greater Than 100%

Use proportions to find the following.

a. 100% of 86.

b. 120% of 75.

c. 200% of 91.

d. 445% of 250.

Use the percent equation to find the following.

e. 100% of 128

f. 200% of 256.

g. 160% of 55.

h. 344% of 100.

Use proportions or the percent equation to solve.

- i. Dion bought a gold chain for \$86. He sold it for 300% of his cost. What was his selling price?
- j. There were 60 people invited to a party. 120% of the people invited came to the party. How many people were at the party?

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Name _____

Date _____

Percents Greater Than 100%

Use proportions to find the following.

a. 100% of 62.

b. 130% of 85.

c. 251% of 100.

d. 184% of 50.

Use the percent equation to find the following.

e. 100% of 76

f. 250% of 98.

g. 145% of 890.

h. 150% of 124.

Use proportions or the percent equation to solve.

i. Dennis scored 125 3-point baskets in one season. The following season, he scored 120% of that number. How many 3-point baskets did he make the second season?

j. Jennifer read a book in 3 hours. Pip took 250% as long to read the same book. How long did it take Pip?

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Name _____

Date _____

Relating Numbers by Percents

Solve.

a. What percent of 35 is 28? _____

b. What percent of 25 is 15? _____

c. What percent of 20 is 14? _____

d. What percent of 36 is 27? _____

e. What percent of 128 is 64? _____

f. What percent of 45 is 54? _____

g. 4 is what percent of 20? _____

h. 12 is what percent of 30? _____

i. 28 is what percent of 16? _____

j. 85 is what percent of 100? _____

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Name _____

Date _____

Relating Numbers by Percents

- a. Bennie Talltree is on a 1,500-km trip. So far, he has traveled 300 km. What percent of his trip has Bennie traveled so far?
- b. Colin has a 50G hard drive. He has used 35G already. What percent of Colin's hard drive is used?
- c. Sammie read 75 pages of a 250-page book. What percent has he read?
- d. Carlos wants a new computer that costs \$960. He has saved \$840 so far. What percent of the cost does Carlos have so far?
- e. Dr. Patel has seen 6 patients today. Three of those patients were children. What percent of the patients were children?
- f. Garrett has 40 pairs of socks. He counted 18 pairs that had holes in them. What percent of his pairs of socks have holes?

Name _____

Date _____

Finding the Total

Use proportions to solve the following.

a. 35% of _____ is 14.

b. 52 is 65% of _____ .

c. 66 is 30% of _____ .

d. 24% of _____ is 84.

Use the percent equation to solve the following.

e. 36% of _____ is 108.

f. 162 is 45% of _____ .

g. 86.4 is 48% of _____ .

h. 45% of _____ is 90.

Use proportions or the percent equation to solve.

- i. Bill paid \$132 for a pair of speakers. He paid 60% of the original price. What was the original price?
- j. Cassandra hiked 24 miles in one day. This was 25% of the total distance of the hiking trail. How long was the hiking trail?

Name _____

Date _____

Finding the Total

Use proportions or the percent equation to solve.

a. 7% of _____ is 168.

b. 1,035 is 45% of _____ .

c. 34 is 20% of _____ .

d. 14% of _____ is 49.

e. 33% of _____ is 13.2.

f. 8 is 25% of _____ .

g. 4.5 is 15% of _____ .

h. 12.5% of _____ is 4.5.

i. Jamie bought a CD set at 25% off. He saved \$13.
How much was the original price of the set?

j. DVD players are on sale for \$84.48. This is 66% of the regular price. What is the regular price?

k. A serving of potato chips contains 9 grams of fat. This is 15% of the total fat recommended for one day. How many grams of fat are recommended for one day?

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Name _____

Date _____

Percent of Change

Find the percent of increase.

Example: A change from 8 to 10.

Step 1:
Subtract to find
the change from the
original number.

$$\begin{aligned} \text{new} - \text{original} &= \text{change} \\ 10 - 8 &= 2 \end{aligned}$$

Step 2:
Write the ratio of
change to original.

$$\frac{\text{change}}{\text{original}} = \frac{2}{8}$$

Step 3:
Write the ratio as
a percent.

$$\frac{2}{8} = 25\% \text{ increase}$$

- a. A change from 75 to 105. b. A change from 64 to 72.
- c. A change from 90 to 108. d. A change from 32 to 48.
- e. A school had a total enrollment of 1,050 students last year. This year the enrollment is 1,491 students. What is the percent of increase?
- f. The cost of a bottle of fruit juice in a vending machine was \$0.75 last week. This week it is \$1.50. What is the percent of increase?

Name _____

Date _____

Percent of Change

Find the percent of decrease.

- a. A change from 360 to 270. b. A change from 20 to 8.
- c. A change from 400 to 350. d. A change from 80 to 72.
- e. A new car was valued at \$25,000 last year. This year the same car has a value of \$15,000. What is the percent of decrease in the value?
- f. The regular price of a dress is \$120. The sale price is \$90. What is the percent of decrease in price?
- g. In 1980, a company had 1,500 employees. In 2,000, the same company had 1,125 employees. What is the percent of decrease in employees?
- h. Percent of _____ is the percent of change when an amount goes down.
- i. Percent of _____ is the percent of change when an amount goes up.

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Name _____

Date _____

Sales Tax and Discounts

- a. Darryl bought a CD for \$9.00. The sales tax rate was 6.5%. How much sales tax did he pay?

- b. Casey bought a new car for \$23,000. The sales tax rate was 5.5%. How much sales tax did she pay?

- c. Qwin bought a shirt that was marked \$23. The sales tax rate was 7%. What was his total cost?

- d. Dale bought a cordless drill for \$80. The sales tax rate was 7.5%. What was her total cost?

- e. Mac's bill for dinner was \$15. He has a senior discount of 10%. How much was his discount?

- f. Rabbits cost \$6.00. At Easter, they were sold at a 15% discount. How much did you save if you bought one at Easter?

- g. A television has a regular price of \$570. It is on sale for 25% off. What is the sale price of the television?

- h. An ATV costs \$7,200. It is last year's model, so it is discounted 10%. What is the sale price of the ATV?

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Name _____

Date _____

Sales Tax and Discounts

Fill in the chart to show the amount of sales tax and total price.

Selling Price	Sales Tax Rate	Tax Amount	Total Cost
a. \$19.00	7%		
b. \$120.00	10.5%		
c. \$80.00	8.75%		
d. \$300.00	3.5%		
e. \$125.60	5%		
f. \$52.50	6%		
g. \$62.00	5.5%		

Fill in the chart to show the amount of discount and sale price.

Original Price	Discount Rate	Discount Amount	Sale Price
h. \$480.00	20%		
i. \$500.00	25%		
j. \$99.00	10%		
k. \$169.00	30%		
l. \$850.00	75%		
m. \$19.00	15%		
n. \$50.00	30%		

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Name _____

Date _____

Commission and Income

- a. Liz sold a house for \$150,000. Her commission is 3%. How much did she earn on the sale?

- b. Emmanuel sold 5 acres of land for \$35,000. His commission was \$1,225. What was his commission rate?

- c. A fabric store sells sewing machines on a 5% commission. Sandi sold a \$1,600 machine. How much was her commission?

- d. A sale of \$2,500 paid \$150 in commission. What is the commission rate?

- e. Dion earned \$2,500 last year. If 35% was taken out in deductions, what was Dion's net income?

- f. Mr O'Dell received a commission of \$1,500. If 21% was taken out in deductions, what was his net income?

- g. Pippa's commission was \$15,000. \$5,250 was taken out in deductions. What percent was taken out in deductions?

- h. Isabel earned \$869. If 28% was deducted, what was her net income?

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Name _____

Date _____

Commission and Income

- a. The amount of income before taxes and deductions is called _____ .
- b. The amount of income after taxes and deductions is called _____ .
- c. In one month, Fiona sold \$900 in merchandise. She earned 5% of her sales. What was the amount of her commission?
- d. Moisha earned \$2,520 on sales of \$42,000. What is the rate of commission?
- e. Francis earned \$210. If 20% is deducted, how much is her net income?
- f. Dominic sells appliances on commission. In one week, he had \$2560 in sales. He earned 9% in commission. How much was his commission? _____ His deductions came to 25%. How much was deducted? _____ What was his net income? _____
- g. Madeline earns a commission of 15%. She sold \$1,200 in merchandise. She has 32% in deductions. What was her net income?

Name _____

Date _____

Tips

Use rounding to decide how much to tip. Show your work.

- a. A family steak dinner came to \$52.80. They wanted to tip around 20%. About how much should the tip have been?

- b. Bryce had lunch at an Italian restaurant. His bill was \$15.23. He wanted to tip around 15%. About how much should the tip have been?

- c. The Suttons took a group of people to dinner. The total bill was \$122.46. About how much is a tip of 15% on \$122.46?

- d. A hair coloring costs \$32. About how much is a 15% tip on \$32?

- e. Dana and his son had dinner for \$23.66. About how much is a 20% tip on their dinner?

- f. Misha is a waitress. One patron always leaves at least a 15% tip. If the bill is \$43.62, what is about the least amount she should expect?

- g. Hugh spent \$15.00 on a haircut. He left a 20% tip. How much was the tip?

Name _____

Date _____

Tips

Use mental math to find the amount of each tip.

Cost of Service	10% tip	20% tip
a. \$20		
b. \$100.00		
c. \$80.00		
d. \$35.00		
e. \$48.00		
f. \$125.00		
g. \$40.00		
h. \$500.00		

- i. Sally had a manicure that cost \$50. She wants to leave a 15% tip. She knows that 10% of 50 is \$5. How can she quickly find the correct amount to tip? How much should she tip?

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Name _____

Date _____

Simple Interest

- a. The amount of money in an account is called _____ .
- b. The percent that is paid on money in an account is called _____ .
- c. What is the formula for simple interest? _____
- d. Find the simple interest on \$1,000 at 5% for 2 years.
- e. Find the simple interest on \$500 at 4% for 1 year.
- f. Find the simple interest on \$1,400 at 2.25% for 3.5 years.
- g. Find the simple interest on \$1,800 at 3% for 10 years.
- h. Find the simple interest on \$300 at 1.5% for 1 year.
- i. Find the simple interest on \$650 at 6.5% for 3 years.

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Name _____

Date _____

Simple Interest

- a. Annual means _____ time(s) per year.
- b. Semiannual means _____ time(s) per year.
- c. Quarterly means _____ time(s) per year.
- d. Monthly means _____ time(s) per year.
- e. Find the semiannual simple interest on \$1,800 at 3%.
- f. Find the quarterly simple interest on \$1,000 at 5%.
- g. The Robinsons borrowed \$28,000 at 8.5% for 5 years.
How much simple interest will they pay?
- h. A 4-year loan of \$8,000 has a simple interest rate of 7%.
How much interest will be paid?
- i. Ivan put \$620 in a savings account that pays 3.25%. How much
will his savings earn in one year?

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Name _____

Date _____

Compound Interest

- a. Find the compound interest on \$600 for 3 years at 5% compounded annually. Show your work.
- b. An account compounds quarterly at 4%. If the beginning balance is \$1,000, how much will be in the account at the end of one year? Show your work. (Hint: Quarterly means use 0.25 for the time at each compounding.)

Answers

Ratios

Page 3: a. terms; b. 1:5, 1 to 5, or $\frac{1}{5}$; c. 4 to 7; d. 10:33; e. $\frac{59}{95}$;
f. 8 to 17, 8:17, $\frac{8}{17}$; g. 17 to 25, 17:25, $\frac{17}{25}$; h. 17 to 8, 17:8, $\frac{17}{8}$;
i. 8 to 25, 8:25, $\frac{8}{25}$

Page 4: (Ratio answers may be written in any form) a. 8; b. 2;
c. 3:13; d. 13:16; e. 5:8; f. 4:4; g. 9:12; h. 12:21; i. 21:5

Equivalent Ratios

Page 5: a-h. Answers may vary. Check individually.; i. 20:25,
possible answer 4:5; j. 8:4, possible answer 2:1; k. 4:6, possible
answer 2:3

Page 6: a-h. Answers may vary. Check individually.; i. 15:24,
possible answer 5:8; j. 12:28, possible answer 3:7; k. 90:270,
possible answer 1:3

Reducing Ratios

Page 7: a. 1, 2, 4, 5, 10, 20; b. 1, 2, 3, 4, 6, 8, 12, 24; c. 1, 2, 4; d. 4;
e. possible answer 10:7; f. possible answer 4:5; g. possible answer
2:3; h. 3 to 4; i. 5 to 6; j. 1 to 3; k. 4 to 3; l. 13 to 3

Page 8: a. 1, 2, 4, 8, 16, 32; b. 1, 2, 3, 4, 6, 8, 9, 12, 16, 24, 32, 48, 96;
c. 1, 2, 4, 8, 16, 32; d. 32; e. possible answer 1:3; f. possible answer
4:5; g. possible answer 1:15; h. 7 to 4; i. 8 to 9; j. 11 to 12; k. 4 to 5;
l. 1 to 3

Rates

Page 9: a. 65 mph; b. 30 mpg; c. \$3 per lb; d. \$30 per hour; e. \$4
per gallon; f. 800 km per hour; g. \$78 per room

Page 10: a. 3 mph; b. \$0.05 per lb; c. 250 mph; d. \$5 per hour;
e. 4 mph; f. \$4 per lb; g. 30 words per minute

Ratios and Fractions

Page 11: a. 3, 6, 9, 12, 15, 18; b. 5, 10, 15, 20, 25, 30; c. 15; d. 4, 8, 12,
16, 20, 24; e. 10, 20, 30, 40, 50, 60; f. 20; g. 2 to 5; h. 7 to 10;
i. 5 to 3

Page 12: a. 9 to 2; b. 3 to 2; c. 14 to 3; d. 11 to 1; e. 36 to 25; f. 28 to 99; g. 3 to 2; h. 25 to 42; i. 2 to 3; j. 7 to 24

Ratios and Decimals

Page 13: a. 1.2, 12, 120; b. 62.5, 625, 6,250; c. 115.62, 1,156.2, 11,562; d. 75.68, 756.8, 7,568; e. 820.51, 8,205.1, 82,051; f. 121.4, 1,214, 12,140; g. 0.06, 0.6, 6; h. 601.8, 6,018, 60,180; i. 387.68, 3,876.8, 38,768; j. 0.0012, 0.012, 0.12; k. 220.58, 2,205.8, 22,058; l. 41.75, 417.5, 4,175; m. 85.002, 850.02, 8,500.2; n. 8.63, 86.3, 863; o. 2,007, 20,070, 200,700

Page 14: a. 4 to 1; b. 1 to 5; c. 2 to 1; d. 3 to 2; e. 1 to 50; f. 3 to 5; g. 1 : 5; h. 5 : 1; i. 1 : 5; j. 3 : 10; k. 8 : 3; l. 50 : 1

Unit Ratios and Rates

Page 15: Decimals or fractions may be used in answers. a. $1\frac{2}{3}$ times as much blue.; b. 1.4 times as much rye.; c. 5 times faster.; d. 1.8 times larger.; e. 3.5 times as much money.

Page 16: a. \$6.50 per hour; b. 23.4 miles per gallon; c. \$4.50 per lb; d. 65.4 miles per hour; e. \$1.50 per can; f. 46 km per hour

The Better Buy

Page 17: a. \$0.60; b. \$0.55; c. \$3.30 for 6 cans.; d. 60-tablet bottle; e. package of 20; f. Lori; g. Answers will vary.

Page 18: a. Individually at 12 ears for \$3.00; b. Michelle; c. Miguel; d. Rodger; e. 2-liter bottle; f. They rode at the same speed.; g. Cody

Distance, Rate, and Time

Page 19: a. 50 mph; b. 1.4 miles per minute; c. 30.5 km per hour; d. distance = rate x time; e. 520 miles; f. 2 miles; g. 150 km

Page 20: a. 630 miles; b. 440 miles; c. 320 km; d. 3 miles; e. 13.5 miles; f. 60 miles; g. 310 miles; h. 60 km; i. 94 km

Proportions

Page 21: a. not proportional; b. not proportional; c. not proportional; d. proportional; e. proportional; f. proportional; g. proportional; h. not proportional; i. proportional; j. proportional; k. not proportional; l. proportional

Page 22: a. not proportional; b. proportional; c. not proportional; d. proportional; e. proportional; f. proportional; g. proportional; h. not proportional; i. proportional; j. proportional; k. not proportional; l. proportional

Solving Proportions

Page 23: a. 12; b. 16; c. 2; d. 4; e. 1; f. 2; g. 6; h. 6; i. 5; j. 4; k. 9; l. 1; m. $60/5 = ?/60$, 720 candy bars; n. $1/5 = 8/?$, 40 seconds

Page 24: a. 2; b. 16; c. 36; d. 12.8; e. 1; f. 2.4; g. 6; h. 20; i. 5; j. 2.5; k. 8.25; l. 4; m. $10/80 = 15/?$, 120 pounds; n. $8/18 = ?/45$, 20 ounces

Ratios in Geometry

Page 25: a. ratio; b. 10 m; c. 12; d. 1.5; e. 15; f. 15 feet

Page 26: a. 165 inches; b. 24 feet; c. 20 inches

Scale Drawings and Models

Page 27: a. smaller; b. larger; c. scale; d. 200 km; e. 24 inches; f. 16 cm

Page 28: a. 8 inches; b. 0.1 inches; c. 15 inches; d. 75 miles

The Golden Ratio

Page 29: Answers may vary. Check student understanding. a. Yes; b. No; c. No; d. Yes; e. No; f. No; g. About 14 feet; h. About 40 feet

Page 30: Answers may vary. Check student understanding.

Alternate Proportions

Page 31: a. 2 and 8, 5 and 20; b. 8 and 5, 4 and 2.5; c. 3 and 5, 9 and 15; d. 5 and 10, 9 and 18; e. 8 and 24, 1 and 3; f. 5 and 6, 25 and 30; g. $2/8 = 5/20$; h. $8/5 = 4/2.5$; i. $3/5 = 9/15$; j. 5/10 and 9/18, not true

Page 32: a. 7 and 21, 6 and 18; b. 6 and 8, 15 and 20; c. 12 and 4, 9 and 3; d. 1 and 4, 12 and 48; e. 5 and 8, 10 and 16; f. 7 and 12, 21 and 36; g. $7/21 = 6/18$; h. $6/8 = 15/20$; i. $12:4 = 9:3$; j. $1:4 = 12:48$; k. $5:8 = 10:16$; l. $7:12 = 21:36$

Percents and Ratios

Page 33: a-b. Check graphs; c. 18%; d. 43%; e. 150%; f. 62%; g. $86/100$; h. $73/100$; i. $180/100$; j. $40/100$; k. $1/100$; l. $55/100$; m. $327/100$; n. $0.6/100$

Page 34: a. 16%; b. 837%; c. 130%; d. 92%; e. $19/100$; f. $853/100$; g. $27/20$; h. $1/4$; i. $1/20$; j. $7/10$; k. 6 to 25; l. 89%; m. 34%

Percents, Fractions, and Decimals

Page 35: a. $43/50$; b. $2/25$; c. $3\ 2/5$; d. $19/20$; e. $53/100$; f. $1/5$; g. $1\ 43/100$; h. $1\ 1/100$; i. 0.86; j. 0.08; k. 3.4; l. 0.95; m. 0.53; n. 0.2; o. 1.43; p. 1.01; q. 61%; r. 7%; s. 125%; t. 240%; u. 90%; v. 37%; w. 75%; x. 2%; y. 60%; z. 32%; aa. 50%; bb. 12.5%

Page 36: a. 0.15; b. $3/20$; c. 30%; d. $3/10$; e. 67%; f. $67/100$; g. 220%; h. 2.2; i. 0.52; j. $13/25$; k. 7.5%; l. 0.075; m. 87.5%; n. $1/2$ of the goats; o. 0.25

Percents and Proportions

Page 37: a. 25.6; b. 12.5; c. 19.6; d. 36 e. \$9; f. \$204.80; g. 6 students

Page 38: a. \$25; b. \$798.40; c. 22 problems; d. \$3,150; e. 8 comedies; f. \$3

The Percent Equation

Page 39: a. 6; b. 511; c. 44; d. 45; e. 8.1; f. 1.6; g. 9 students; h. \$23.52

Page 40: a. 63; b. 1.92; c. 32; d. 124; e. 3; f. 4; g. 36 members; h. 60 cargo planes; i. \$2.25

Percents Greater Than 100%

Page 41: a. 86; b. 90; c. 182; d. 1,112.5; e. 128; f. 512; g. 88; h. 344; i. \$258; j. 72 people

Page 42: a. 62; b. 110.5; c. 251; d. 92; e. 76; f. 245; g. 1,290.5; h. 186;
i. 150 baskets; j. 7.5 hours

Relating Numbers by Percents

Page 43: a. 80%; b. 60%; c. 70%; d. 75%; e. 50%; f. 120%; g. 20%;
h. 40%; i. 175%; j. 85%

Page 44: a. 20%; b. 70%; c. 30%; d. 87.5%; e. 50%; f. 45%

Finding the Total

Page 45: a. 40; b. 80; c. 220; d. 350; e. 300; f. 360; g. 180; h. 200;
i. \$220; j. 96 miles

Page 46: a. 2,400; b. 2,300; c. 170; d. 350; e. 40; f. 32; g. 30;
h. 36; i. \$52; j. \$128; k. 60 grams of fat.

Percent of Change

Page 47: a. 40% increase; b. 12.5% increase; c. 20% increase;
d. 50% increase; e. 42% increase; f. 100% increase

Page 48: a. 25% decrease; b. 60% decrease; c. 12.5% decrease;
d. 10% decrease; e. 40% decrease; f. 30% decrease;
g. 25% decrease; h. decrease; i. increase

Sales Tax and Discounts

Page 49: a. \$0.54; b. \$1,265; c. \$24.61; d. \$86; e. \$1.50; f. \$0.90;
g. \$427.50; h. \$6,480

Page 50: a. \$1.33, \$20.33; b. \$12.60, \$132.60; c. \$7, \$87; d. \$10.50,
\$310.50; e. \$6.28, \$131.88; f. \$3.15, \$55.65; g. \$3.41, \$65.41; h. \$96,
\$384; i. \$125, \$375; j. \$9.90, \$89.10; k. \$50.70, \$118.30; l. \$637.50,
\$212.50; m. \$2.85, \$16.15; n. \$15, \$35

Commission and Income

Page 51: a. \$4,500; b. 3.5%; c. \$80; d. 6%; e. \$1,625; f. \$1,185;
g. 35%; h. \$625.68

Page 52: a. gross income; b. net income; c. \$45; d. 6%; e. \$168;
f. \$230.40, \$57.60, \$172.80; g. \$122.40

Tips

Page 53: Answers may vary from those given due to rounding.
a. \$10; b. \$2; c. \$18; d. \$5; e. \$5; f. \$6.50; g. \$3

Page 54: a. \$2, \$4; b. \$10, \$20; c. \$8, \$16; d. \$3.50, \$7; e. \$4.80,
\$9.60; f. \$12.50, \$25; g. \$4, \$8; h. \$50, \$100; i. Answer may vary.
Possible answer: 5% is half of 10%. Since 10% is \$5, 5% is \$2.50.
Sally can quickly see that 15% of \$50 is \$7.50. She should tip
\$7.50.

Simple Interest

Page 55: a. principal; b. interest; c. interest = principal x rate x
time; d. \$100; e. \$20; f. \$110.25; g. \$540; h. \$4.50; i. \$126.75

Page 56: a. 1; b. 2; c. 4 d. 12; e. \$27; f. \$12.50; g. \$11,900; h. \$2,240;
i. \$20.15

Compound Interest

Page 57: a. \$94.58; b. \$1,040.60

Page 58: a. 40; b. 36; c. \$4.53; d. \$541.21

