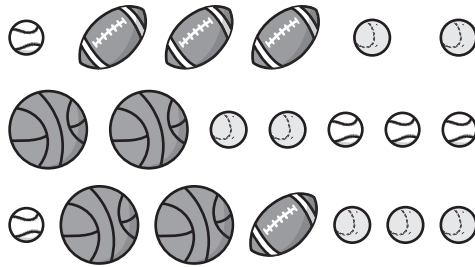


Practice: Skills, Concepts, and Problem Solving

Use the diagram to write each ratio as a fraction in simplest form.



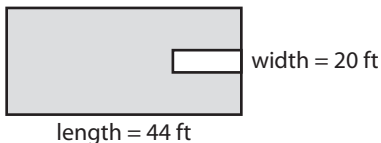
- baseballs and tennis balls to the total number of balls _____
- footballs and basketballs to tennis balls and baseballs _____
- balls that are *not* tennis balls to the total number of balls _____
- footballs to basketballs _____

Write each ratio as a fraction in simplest form.

- Michele ran 3 out of 7 days this week. _____
- A bowl of fruit contains 8 apples and 4 oranges. _____

Solve.

- SWIMMING** The dimensions of a rectangular swimming pool are 44 feet long by 20 feet wide. What is the ratio of the pool's width to its length? _____



Write the vocabulary word(s) that completes each sentence.

- A _____ is a comparison of two numbers by division.
- The greatest number that divides evenly into two or more numbers is called the _____.

Practice: Skills, Concepts, and Problem Solving

Write each rate as a fraction. Find each unit rate.

- 1 110 miles in 2 hours _____
- 2 36 points scored in 3 games _____
- 3 90 customers served in 4.5 hours _____
- 4 12 pencils in 2 packs _____

Find each unit rate. Use the unit rate to find the unknown rate.

- 5 12 gallons in 5 minutes; gallons in 7 minutes _____
- 6 140 heartbeats in 2 minutes; heartbeats in 5 minutes _____

Which product has the lower unit cost? Round to the nearest cent.

- 7 a 6-pack of juice for \$1.89 or a 12-pack of juice for \$4.15 _____
- 8 2 pounds of granola for \$2.50 or 5 pounds of granola for \$6.30 _____
- 9 a box of 30 CDs for \$10.99 or a box of 100 CDs for \$32.99 _____

Solve.

- 10 **TRANSPORTATION** A car travels 144 miles on 6 gallons of gasoline. _____
How many miles can the car travel on 15 gallons of gasoline?

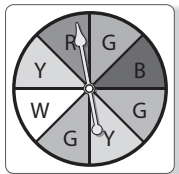
Write the vocabulary word that completes each sentence.

- 11 A _____ is the cost of a single piece or item.
- 12 A _____ is the comparison of two numbers by division.
- 13 _____ can be represented by equivalent fractions.
- 14 A _____ is a ratio of two measurements or amounts with different units.
- 15 A _____ describes how many units of the first type of quantity are equal to one unit of the other type of quantity.

Practice: Skills, Concepts, and Problem Solving

Use the spinner to find each probability. Write the probability as a fraction in simplest form.

- 1 $P(\text{green or black})$ _____
- 2 $P(\text{not yellow})$ _____



A cooler contains 6 bottles of water, 3 bottles of tea, 7 bottles of lemonade, and 4 bottles of juice. Write each probability as a fraction in simplest form.

- 3 What is the probability of choosing one bottle from the cooler without looking and getting a bottle of water? _____
- 4 What is the probability of choosing one bottle from the cooler without looking and getting a bottle that is *not* juice? _____
- 5 What is the probability of choosing one bottle from the cooler without looking and getting a bottle of tea or a bottle of lemonade? _____

Find each probability. Write the probability as a fraction in simplest form.

- 6 12 red jelly beans, 8 black jelly beans, and 4 yellow jelly beans;
 $P(\text{red jelly bean})$ _____
- 7 4 bags of corn chips, 3 bags of pretzels, and 5 bags of popcorn;
 $P(\text{bag that is not popcorn})$ _____

Solve.

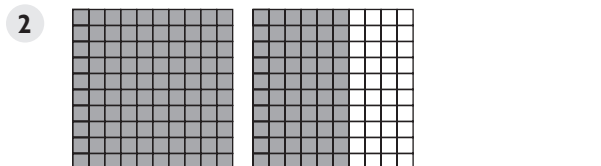
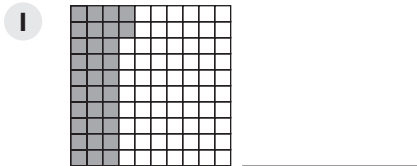
- 8 **LANGUAGE** Suppose the letters HOLLYWOOD are placed in a bag. A letter is pulled out without looking. What is the probability that the letter is an O? _____

Write the vocabulary word that completes each sentence.

- 9 An _____ is a possible result of a probability experiment.
- 10 A _____ is the comparison of two numbers by division.
- 11 An _____ is a type of outcome.
- 12 _____ is a number between 0 and 1 that measures the likelihood of an event happening.

2-1 Practice: Skills, Concepts, and Problem Solving

Identify each percent that is modeled.



Write each percent as a decimal and a fraction in simplest form.

3 68%

5 146%

4 3%

6 90%

Use the diagram for Questions 7–10. Write each ratio as a fraction in simplest form, a percent, and a decimal.

- 7 number of red counters to total number of counters

fraction _____ percent _____ decimal _____

- 8 number of yellow counters to total number of counters

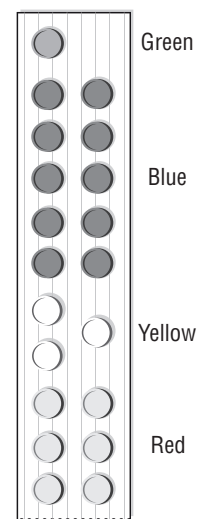
fraction _____ percent _____ decimal _____

- 9 number of blue counters to total number of counters

fraction _____ percent _____ decimal _____

- 10 number of green counters to total number of counters

fraction _____ percent _____ decimal _____



Solve.

- 11 **SAVINGS** Marcos and Rosita each deposit 12% of their earnings into a savings account. One week, Marcos earned \$80 and Rosita earned \$115. Who deposited the greater amount into their savings account? Explain. _____

- 12 **PARKING** In section A of the mall parking lot, there are a total of 100 vehicles, of which 54 are minivans. In section B, there are 150 vehicles, of which 90 are minivans. Which section has the greater percentage of minivans? _____

Write the vocabulary word that completes the sentence.

- 13 A _____ is a comparison of two numbers by division.

- 14 A _____ is a ratio that compares a number to 100.

2-2 Practice: Skills, Concepts, and Problem Solving

Write each fraction as a decimal. Use a model.

1 $\frac{7}{10}$ _____



2 $\frac{3}{4}$ _____



Write each percent as a decimal.

3 36% _____

4 29% _____

5 14% _____

6 45% _____

Write each fraction as a percent.

7 $\frac{6}{48}$ _____

8 $\frac{12}{15}$ _____

9 $\frac{1}{5}$ _____

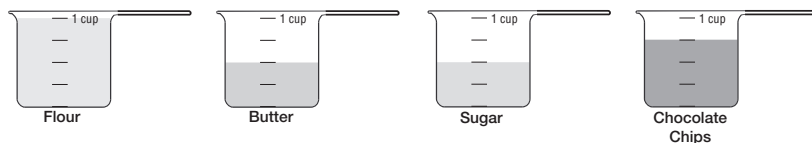
10 $\frac{26}{40}$ _____

Solve.

- 11 **TIPS** A customer at the salon wants to leave a 20% tip. Write the percent as a fraction in simplest form. _____

- 12 **PARTY** At the holiday party, 82% of people ate the chocolate cake. Write the percent as a fraction in simplest form. _____

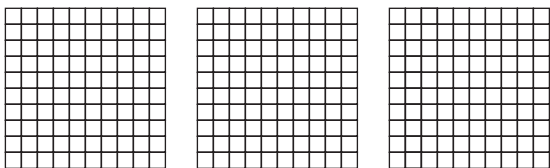
- 13 **BAKING** While baking cookies, Maggie had to use a measuring cup as shown below for each ingredient, which ingredient used 75% of a cup? _____



Practice: Skills, Concepts, and Problem Solving

Compare the numbers using models.

1 $\frac{1}{5}$, 0.15, 12% _____



2 50%, $\frac{2}{3}$, 0.4 _____



Order the numbers from least to greatest.

3 $\frac{7}{12}$, 84%, 0.62 _____

4 13%, 0.013, $\frac{12}{13}$ _____

5 $\frac{4}{7}$, 36%, 0.41 _____

6 0.98, $\frac{58}{60}$, 92% _____

7 103%, $\frac{5}{4}$, 1.35 _____

8 $\frac{7}{8}$, 0.8, 87% _____

Solve.

- 9 **POPULATION** The school took a survey to find information on the number of children in each family. Which family type is most common? _____

Number of Children	Fraction of Responses
1	$\frac{48}{196}$
2	52.5%
3 or more	0.23

3-1

Practice: Skills, Concepts, and Problem Solving

Write each percent as a decimal.

1 4% _____

2 342% _____

3 $\frac{1}{2}\%$ _____

4 8.65% _____

Who is correct?

5 What percent of 40 is 7? Who is correct? _____

Crystal

$$n \times 40 = 7$$

$$n = 0.175$$

$$\underline{0.175\%}$$

Marissa

$$n \times 7 = 40$$

$$n = 5.7$$

$$\underline{5.7\%}$$

Sabina

$$n \times 40 = 7$$

$$n = 0.175$$

$$\underline{17.5\%}$$

Solve using the percent equation.

6 7 is what percent of 20? _____

7 5% of 90 is what number? _____

8 32% of what number is 40? _____

9 What is 210% of 50? _____

10 18 is 75% of what number? _____

11 What percent of 5,400 is 27? _____

Solve.

12 **BASKETBALL** Rick made 230 free throws and missed only 20. What percent of his free throws did Rick make? _____

13 **TIPS** Jim and Edith left a tip of \$5.50 for their server. This was 18% of the bill. How much was their bill, to the nearest cent? _____

14 **YEARBOOK** Of the 280 students at the school, 15% volunteered to work on the school yearbook. How many students volunteered? _____

3-2

Practice: Skills, Concepts, and Problem Solving

Write a proportion for each percent problem.

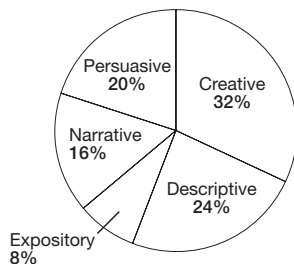
- 1 31% of 400 is 124 _____
- 2 7.5% of 240 is 18 _____

Find the amount of commission on each sales amount at the rate given.
Round to the nearest cent.

- 3 \$1,525 at 12% _____
- 4 \$350 at 8.5% _____
- 5 \$800 at $5\frac{3}{4}\%$ _____

Use the circle graph for exercises 6 and 7.

Student Writing Assignments



- 6 If 115 students turned in papers, how many students would you expect to have submitted persuasive papers? _____
- 7 If 50 students turned in papers, how many students would you expect to have submitted expository papers? _____

Use the percent equation or proportion to solve.

- 8 **TESTING** A standardized test is comprised of 75 questions. A fill-in section comprises 16% of the questions. How many questions are fill-in? _____
- 9 **DOMINOS** A set of dominos has 13 “bones” which are blank on at least one side. If 14.3% of the dominos are blank on at least one side, how many dominos are in the set? _____
- 10 **DINING** Seth’s father took him out for dinner. The total tab was \$35.12. He wants to leave a 20% tip. What amount of money should be left to cover the tab and the tip? Round to the nearest dollar. _____

3-3

Practice: Skills, Concepts, and Problem Solving

Who is Correct?

- 1 Find the amount of simple interest earned to the nearest cent: \$500 at 3% for 8 years. Who is correct? _____

Keri

$$I = 500 \times 0.03 \times 0.67$$

$$I = \$10.05$$

Steve

$$I = 500 \times 0.3 \times 8$$

$$I = \$1,200.00$$

Joel

$$I = 500 \times 0.03 \times 8$$

$$I = \$1,20.00$$

- 2 Find the value of the investment using the compound interest formula, rounding to the nearest cent: \$2,000 at 8% compounded semiannually for 5 years. Who is correct? _____

Julian

$$A = 2,000(1 + 0.04)^{10}$$

$$A = \$2,960.49$$

Omar

$$A = 2,000(1 + 0.08)^5$$

$$A = \$2,938.66$$

Maria

$$A = 2,000(1 + 0.08)^{10}$$

$$A = \$4,317.85$$

Find the amount of simple interest earned to the nearest cent.

- 3 \$425, 3.5%, 10 years _____
- 4 \$1,000, 5%, 8 months _____
- 5 \$5,000, $6\frac{3}{4}\%$, 2 years _____

Find the value of each investment using the compound interest formula.

Round each answer to the nearest cent.

- 6 \$2,150 invested for 2 years at 10% compounded quarterly. _____
- 7 \$300 invested for 10 years at 7% compounded annually. _____

Solve.

- 8 **PLANNING** Loretta wants to save \$50,000 for her daughter's college education. If she invests \$15,000 at 6% compounded semiannually, will she have enough in 12 years? _____

3-4

Practice: Skills, Concepts, and Problem Solving

Find each percent of change. Round to the nearest whole percent.

- 1 original price: \$12; new price: \$36

- 2 original price: \$8.50; new price: \$14.88

- 3 original price: \$49.99; new price: \$25.00

- 4 original price: \$18.25; new price: \$12.50

Find each percent of change. Round to the nearest whole percent.

- 5 Gloria is paid \$7.50 per hour to baby-sit. Last year, she earned \$6.75 per hour.

- 6 Austin brought his grade up from an 82 to a 90. _____
- 7 The candle burned from a height of 5 inches to 3 inches. _____
- 8 A pond was 15.25 feet deep last month. This month, with no rain, the pond is 13.5 feet deep. _____

Who is correct?

- 9 Samuel grew 1.75 inches this year, which was an increase of 4% over last year. How tall was Samuel last year? Who is correct? _____

Katie
 $x = 1.75 \div 4$
 $x = 4.375$
 4.375 inches tall

Uma
 $x = 1.75 \div 0.04$
 $x = 43.75$
 43.75 inches tall

Nestor
 $x = 1.75 \div 0.04$
 $x = 43.75$
 45.5 inches tall

$$x = 1.75 \div 0.04$$

$$x = 4.375$$

4.375 inches tall

$$x = 1.75 \div 0.04$$

$$x = 43.75$$

43.75 inches tall

$$x = 1.75 \div 0.04$$

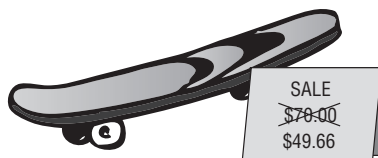
$$x = 43.75$$

$$43.75 + 1.75 = 45.5$$

45.5 inches tall

Solve.

- 10 **DISCOUNT** Jennifer went to the mall to buy a skateboard. What is the percent of discount on these skateboard? _____
Round to the nearest whole percent.



Practice: Skills, Concepts, and Problem Solving

Determine whether each pair of ratios is proportional.

1 $\frac{6}{10}$ _____ $\frac{39}{62}$

4 $\frac{4}{16}$ _____ $\frac{16}{64}$

2 $\frac{6}{8}$ _____ $\frac{15}{20}$

5 $\frac{8}{14}$ _____ $\frac{28}{49}$

3 $\frac{8}{18}$ _____ $\frac{36}{81}$

6 $\frac{4}{9}$ _____ $\frac{72}{32}$

Solve each proportion.

7 $\frac{18}{21} = \frac{g}{28}$ $g =$ _____

12 $\frac{6}{7} = \frac{k}{42}$ $k =$ _____

8 $\frac{10}{25} = \frac{14}{r}$ $r =$ _____

13 $\frac{12}{16} = \frac{\ell}{36}$ $\ell =$ _____

9 $\frac{2}{4} = \frac{t}{60}$ $t =$ _____

14 $\frac{6}{8} = \frac{a}{20}$ $a =$ _____

10 $\frac{4}{32} = \frac{y}{56}$ $y =$ _____

15 $\frac{1}{10} = \frac{4}{z}$ $z =$ _____

11 $\frac{10}{22} = \frac{35}{p}$ $p =$ _____

16 $\frac{3}{4} = \frac{b}{28}$ $b =$ _____

Solve.

17 **FURNITURE** Lazaro is building chairs. He uses 4 legs and 6 supports for each chair. His boss asks him if he has enough supports for all of the legs that he has. Lazaro has 44 legs and 60 supports. Does he have enough supports? Explain. _____

18 **PAINTING** Latasha is painting a room in her house. The directions on the paint say that she needs 3 pints of paint for every 500 ft². How many pints of paint does Latasha need to paint 2,500 ft²? _____

Practice: Skills, Concepts, and Problem Solving

Convert.

- | | | | |
|---|---------------------|----|---------------------|
| 1 | 64 oz = _____ lb | 6 | 20 L = _____ mL |
| 2 | 80 qt = _____ gal | 7 | 11,000 m = _____ km |
| 3 | 132 in. = _____ ft | 8 | 27 kg = _____ g |
| 4 | 15,000 lb = _____ T | 9 | 112 oz = _____ lb |
| 5 | 1,000 cm = _____ m | 10 | 9 ft = _____ yd |

Convert each unit using a proportion. Round to the nearest tenth.

- 11 4 fl oz \approx _____ mL (1 fl oz \approx 29.6 mL)
- 12 3 T \approx _____ kg (1T \approx 907.185 kg)
- 13 12 lb \approx _____ kg (1 kg \approx 2.2 lb)
- 14 20 L \approx _____ gal (1 gal \approx 3.79 L)

Solve.

- 15 **COMPUTER** The file for Alvar's midterm project is 23 megabytes. How many kilobytes is Alvar's file? One megabyte equals 1,024 kilobytes. _____
- 16 **TRAVEL** Dana went to Germany where the speed limit was as high as 100 kilometers per hour. She wants to know how many miles per hour she was driving. How many miles per hour was Dana driving? One km/hr equals approximately 0.621 mph. _____
- 17 **PACKAGES** Joanna needed to mail two packages. One package weighed 6 pounds. The other package weighed 100 ounces. Which package weighed more? _____

Practice: Skills, Concepts, and Problem Solving

Find each total cost.

- 1 One chair is \$37.00. How much are 6 chairs? _____
- 2 Three soccer balls cost \$59.25. How much are 7 soccer balls? _____
- 3 How much are 8 pairs of socks?

- 4 Two candles are \$17.40. How much are 5 candles? _____
- 5 Five tubes of toothpaste cost \$12.00. How much are 10 tubes? _____
- 6 One video game is \$32.79. How much are 3 games? _____



Write a ratio. Then find each unit rate. Round to the nearest tenth.

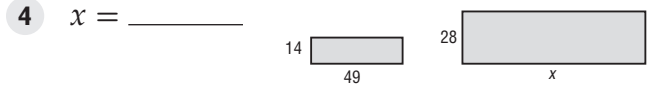
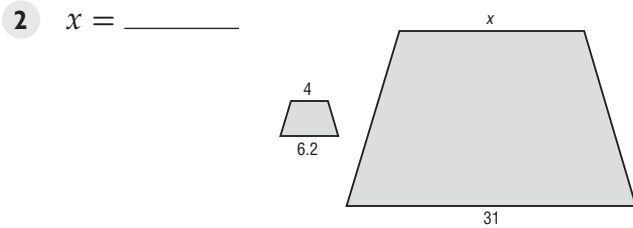
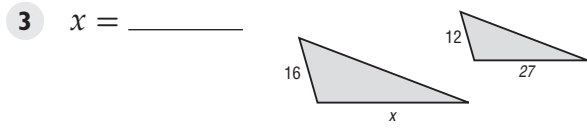
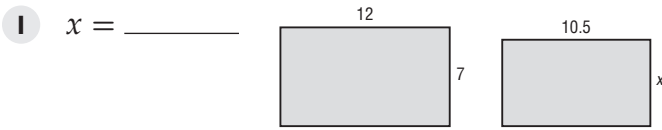
- 7 54 tables with 9 waiters $\frac{\square}{\square}$ _____
- 8 563 miles in 10 hours $\frac{\square}{\square}$ _____
- 9 \$93.60 for 12 hours $\frac{\square}{\square}$ _____
- 10 \$9.35 for 2.8 kg of cherries $\frac{\square}{\square}$ _____
- 11 246 students on 6 buses $\frac{\square}{\square}$ _____
- 12 96 chairs for 12 tables $\frac{\square}{\square}$ _____

Solve. Round to the nearest tenth.

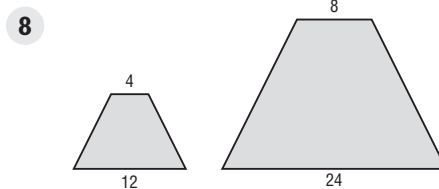
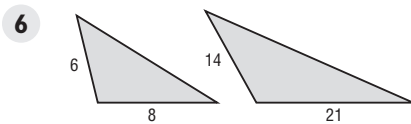
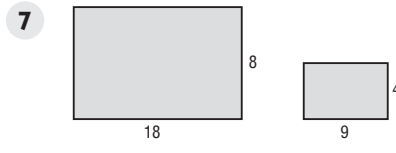
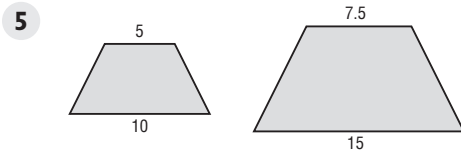
- 13 Mavis can read 185 pages in 7 hours. How many pages would you expect Mavis to read in 20 hours? _____
- 14 Rohan swam 10 laps in 8 minutes. How many laps would you expect Rohan to swim in 15 minutes? _____
- 15 Ms. Flores uses 3 bags of birdseed in 4 months. How many bags would you expect Ms. Flores to use in 1 year? _____
- 16 **TELEPHONE** Tadi was charged \$13.89 for a 27-minute international phone call last month. He called the same number this month. How much will he be charged for a 32-minute phone call? _____
- 17 **LITERATURE** Shanti is reading a book for her English class. She read 74 pages in 2 hours. How many pages can she plan to read in $3\frac{1}{2}$ hours? _____

Practice: Skills, Concepts, and Problem Solving

Find the value of x in each pair of similar figures.



Determine if each pair of polygons is similar. Explain your reasoning.



Use a proportion to solve each problem.

9 Six kiwis cost a total of \$3.30. What is the total cost of 11 kiwis? _____

10 The Min family uses 7 gallons of milk in 2 weeks. How many gallons of milk does the Min family use in 7 weeks? _____

Solve.

11 **LAUNDRY** Rosa needs $1\frac{1}{2}$ hours to do 2 loads of laundry. She has 3 loads this week. How long will it take Rosa to do her laundry this week? _____

12 **PHOTOGRAPHS** Paco has \$6.00 to buy prints from his digital camera. The store offers 6 prints for \$1.25. How many prints can Paco buy? _____