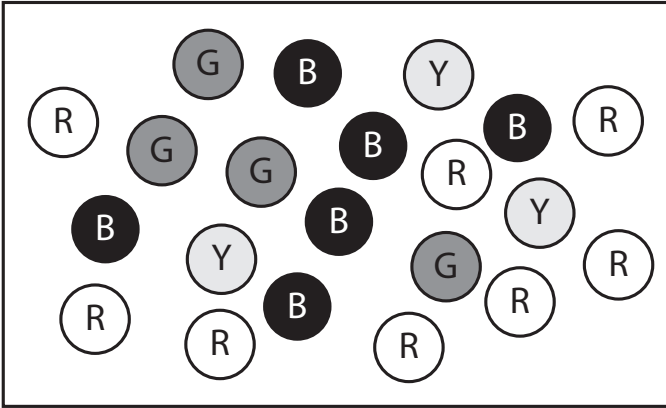


Practice: Skills

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



- 1 the number of yellow marbles to the number of red marbles

- 2 the number of black marbles to the number of red marbles

- 3 the number of blue marbles to the number of red marbles

- 4 the number of yellow marbles to the number of black marbles

Write each ratio as a fraction in simplest form.

- 5 In a computer lab there are 15 desktop computers, 7 laptop computers, and 5 printers. Write the ratio of printers to computers.

- 6 A tray of muffins contains 6 chocolate chip muffins, 3 blueberry muffins, 4 pumpkin muffins, and 2 corn muffins. Write the ratio of corn muffins to chocolate chip muffins.

- 7 A bookshelf contains 8 mystery books, 7 science fiction books, and 4 history books. Write the ratio of books that are *not* science fiction to the total number of books on the shelf.

- 8 An herb garden contains 8 basil plants, 6 oregano plants, 5 parsley plants, and 7 thyme plants. Write the ratio of basil plants to oregano plants.

- 9 In a classroom there are 15 boys and 13 girls. Write the ratio of boys to the total number of students.

Practice: Skills

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

1



2



3 250 envelopes in 10 minutes

4 15 pages in 45 minutes

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

5 125 miles for 2 hours; miles for 5 hours _____6 64 ounces for 8 people; ounces for 30 people _____7 250 inches in 5 seconds; inches in 12 seconds _____8 \$65 for 4 CDs; dollars for 7 CDs _____

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

9 a 40-oz bag of dog food for \$6.79 or a 24-oz bag of dog food for \$3.60 _____

10 a pound of pears for \$0.99 or 5 pounds of pears for \$4.59 _____

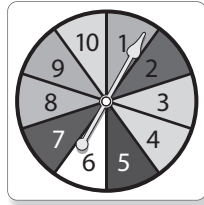
11 a 16-oz box of cereal for \$4.29 or a 12-oz box of cereal for \$2.99 _____

12 a pack of 6 pens for \$4.75 or a pack of 15 pens for \$12.75 _____

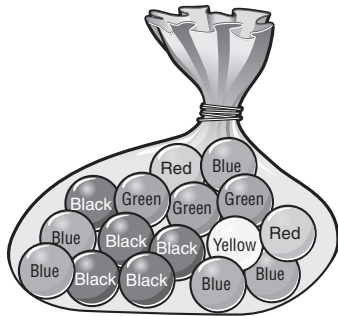
Practice: Skills

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

- 1 $P(\text{multiple of } 3)$ _____
- 2 $P(\text{number greater than } 8)$ _____



Use the bag of marbles to find each probability. Write the probability as a fraction in simplest form.



- 3 $P(\text{red})$ _____
- 4 $P(\text{blue or green})$ _____
- 5 $P(\text{not black})$ _____
- 6 $P(\text{yellow})$ _____

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



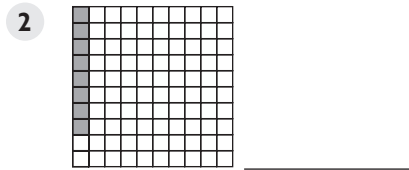
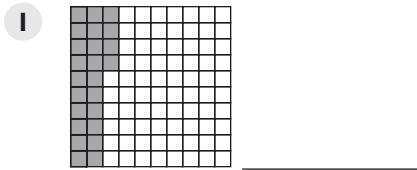
- 7 $P(\text{even number})$ _____
- 8 $P(2, 3, \text{ or } 6)$ _____
- 9 $P(\text{number greater than } 4)$ _____
- 10 $P(\text{number less than } 2)$ _____

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

- 11 You pick a month with only 28 days. _____
- 12 You pick a month with 6 or fewer letters in its name. _____
- 13 You pick the letters *A*, *E*, *I*, *O*, or *U* from the alphabet. _____
- 14 You pick a letter that precedes *Y* in the alphabet. _____

2-1 Practice: Skills

Identify each percent that is modeled.



Write each percent as a decimal.

3 85% _____

5 100% _____

4 2% _____

6 175% _____

Write each percent as a fraction in simplest form.

7 32% _____

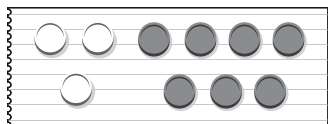
9 49% _____

8 105% _____

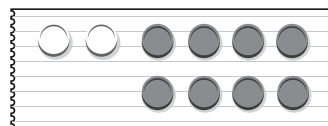
10 4% _____

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

11 Ratio of red circles to total number of circles



12 Ratio of blue circles to total number of circles



13 Ratio of boys to total number of people in a group of 24 boys and 16 girls

14 Ratio of A's to number of letters in the word MAGAZINE

15 Ratio of consonants to total number of letters in the word BASEBALL

2-2 Practice: Skills

Write each fraction as a decimal. Use a model.

1 $\frac{15}{50}$ _____



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



2 $\frac{3}{5}$ _____



Write each percent as a decimal.

4 40% _____

7 5% _____

5 15% _____

8 50% _____

6 66% _____

9 75% _____

Write each fraction as a percent.

10 $\frac{11}{25}$ _____

13 $\frac{6}{30}$ _____

11 $\frac{110}{125}$ _____

14 $\frac{13}{50}$ _____

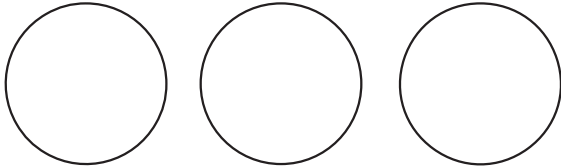
12 $\frac{36}{96}$ _____

15 $\frac{98}{175}$ _____

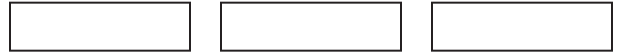
Practice: Skills

Compare the numbers using models.

1 $\frac{2}{3}$, 0.75, 60% _____



2 $33\frac{1}{3}\%$, $\frac{2}{5}$, 0.3 _____



Compare the numbers. Write > or <.

3 $\frac{5}{8}$ _____ $\frac{2}{8}$

4 0.3 _____ $\frac{4}{10}$

5 0.85 _____ 63%

6 100% _____ 1.05

Order the numbers from least to greatest.

7 $\frac{18}{20}$, 41%, 0.62 _____

8 39%, 0.038, $\frac{4}{5}$ _____

9 $\frac{71}{90}$, 87.5%, 0.68 _____

10 0.27, $\frac{50}{60}$, 32% _____

Place the ratios in order from least to greatest.

- 11 In a bag of marbles, 4 are green, 9 are blue, and 8 are red. Write the ratio in simplest form of the number of marbles to the total number of marbles for each color.

- 12 On a spinner, there are 3 yellow sections, 7 purple sections, and 2 orange sections. Write the ratio in simplest form of the number of sections for each color to the total number of sections.

3-1 Practice: Skills

Write each percent as a decimal.

- 1 28% _____
- 2 65.5% _____
- 3 $\frac{3}{4}$ % _____
- 4 125% _____

Who is Correct?

- 5 What percent of 90 is 45? Who is correct? _____

Bob

$$n \times 45 = 90$$

$$n = 2$$

$$200\%$$

$$n \times 45 = 90$$

$$n = 2$$

$$200\%$$

Opal

$$n \times 90 = 45$$

$$n = 0.5$$

$$0.5$$

$$n \times 90 = 45$$

$$n = 0.5$$

$$0.5$$

Che

$$n \times 90 = 45$$

$$n = 0.5$$

$$50\%$$

$$n \times 90 = 45$$

$$n = 0.5$$

$$50\%$$

- 5 What is 16% of 25? Who is correct? _____

Kristen

$$n \times 25 = 16$$

$$n = 0.64$$

$$64\%$$

$$n \times 25 = 16$$

$$n = 0.64$$

$$64\%$$

Paulina

$$0.16 \times 25 = n$$

$$n = 4$$

$$4$$

$$0.16 \times 25 = n$$

$$n = 4$$

$$4$$

Marvin

$$n \times 16 = 25$$

$$n = 1.5625$$

$$1.56$$

$$n \times 16 = 25$$

$$n = 1.5625$$

$$1.56$$

Solve using the percent equation.

- 7 What is 125% of 80? _____
- 8 What is 24% of 120? _____
- 9 65% of what number is 52? _____
- 10 18 is what percent of 25? _____
- 11 What percent of 6,000 is 36? _____
- 12 30 is 12% of what number? _____
- 13 1% of what number is 8? _____
- 14 50 is what percent of 40? _____

3-2 Practice: Skills

Write a proportion for each percent problem.

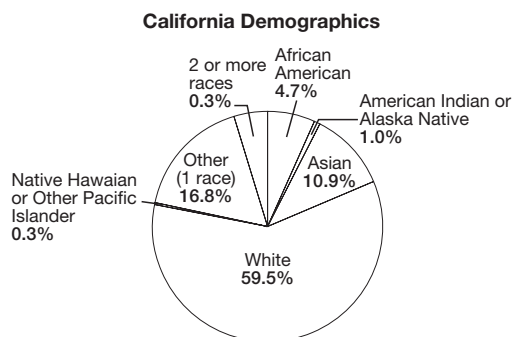
- 1 18% of 225 is 40.5 _____
- 2 2% of 300 is 6 _____

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

- 3 \$7,500 at 15% _____
- 4 \$2,000 at 6% _____
- 5 \$350 at 4.75% _____
- 6 \$412 at $2\frac{1}{2}\%$ _____

Use the circle graph for exercises 7 and 8.

- 7 The population of California is 33,871,648 people, according to the 2000 United States census. How many people in California are of Asian descent?



- 8 How many people in California are of two or more ethnicities? _____

Use the percent equation or proportion to solve.

- 9 Gary played 9 holes of golf. On what percent of the holes did Gary make par, or score even? Round to the nearest tenth. _____

Green Valley Golf Club										
Holes	1	2	3	4	5	6	7	8	9	Score
Par	4	3	5	4	4	3	5	4	3	35
Gary	3	3	5	4	3	4	5	4	3	34

- 10 A commercial states that "4 out of 5 dentists prefer" a certain toothpaste. What percent of the dentists prefer the advertised brand of toothpaste? _____

3-3 Practice: Skills

Who is Correct?

- 1 Find the simple interest earned to the nearest cent: \$740 at 4% for 6 months.
Who is correct? _____

Julie
 $I = 740 \times 0.04 \times 6$
 $I = \$177.60$

Bob
 $I = 740 \times 0.04 \times 0.5$
 $I = \$14.80$

Vito
 $I = 740 \times 0.4 \times 6$
 $I = \$1,776.00$

$$I = 740 \times 0.04 \times 6$$

$$I = \$177.60$$

$$I = 740 \times 0.04 \times 0.5$$

$$I = \$14.80$$

$$I = 740 \times 0.4 \times 6$$

$$I = \$1,776.00$$

- 2 Find the value of the investment using the compound interest formula, rounding to the nearest cent: \$1,500 at 6% compounded quarterly for 7 years.
Who is correct? _____

Ruby
 $A = 1,500(1 + 0.015)^4$
 $A = \$1,592.05$

Diana
 $A = 1,500(1 + 0.04)^7$
 $A = \$1,973.90$

Miguel
 $A = 1,500(1 + 0.15)^{28}$
 $A = \$2,275.83$

$$A = 1,500(1 + 0.015)^4$$

$$A = \$1,592.05$$

$$A = 1,500(1 + 0.04)^7$$

$$A = \$1,973.90$$

$$A = 1,500(1 + 0.15)^{28}$$

$$A = \$2,275.83$$

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

- 3 \$2,000, 5%, 12 years _____
- 4 \$800, 4.25%, 6 months _____
- 5 \$1,500, $7\frac{1}{2}\%$, 5 years _____
- 6 \$525, 12%, 9 months _____

Find the value of each investment using the compound interest formula. Round each answer to the nearest cent.

- 7 \$5,000 invested for 10 years at 8% compounded semiannually. _____
- 8 \$750 invested for 4 years at 6.5% compounded annually. _____
- 9 \$2,750 invested for 20 years at 4% compounded quarterly. _____
- 10 \$3,200 invested for 12 years at 5% compounded semiannually. _____

3-4 Practice: Skills

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

- 1 original price: \$50; new price: \$60

- 2 original price: \$115; new price: \$90

- 3 original price: \$24.95; new price: \$16.63

- 4 original price: \$4.95; new price: \$10.49

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

- 5 After being cut, a board is 72 inches long. It was 96 inches long.

- 6 Devin scored 72 on his last math test. The teacher allowed him to do extra credit and bring the test grade up to 85.

- 7 Linda and Perry built a snowman that was 130 cm tall. After a day in the sun, the snowman was 115 cm tall. _____
- 8 At his yearly check-up, Santos discovered that he was 46 inches tall. His records show that his height one year ago was 43.5 inches tall. _____

Who is correct?

- 9 In its first year, a puppy's height increased by 10 inches. If the height increase is 125%, what was his original height? _____

Percy

$$\frac{125}{100} = \frac{10}{x}$$

$$125x = 1,000$$

$$x = 1,000 \div 125$$

$$x = 8$$

8 inches tall

Ken

$$\frac{125}{100} = \frac{10}{x}$$

$$125x = 1,000$$

$$x = 125 \div 1,000$$

$$x = 12.5$$

12.5 inches tall

Alex

$$\frac{125}{100} = \frac{x}{10}$$

$$100x = 1,250$$

$$x = 1,250 \div 100$$

$$x = 12.5$$

12.5 inches tall

$$\frac{125}{100} = \frac{10}{x}$$

$$125x = 1,000$$

$$x = 1,000 \div 125$$

$$x = 8$$

8 inches tall

$$\frac{125}{100} = \frac{10}{x}$$

$$125x = 1,000$$

$$x = 125 \div 1,000$$

$$x = 12.5$$

12.5 inches tall

$$\frac{125}{100} = \frac{x}{10}$$

$$100x = 1,250$$

$$x = 1,250 \div 100$$

$$x = 12.5$$

12.5 inches tall

Practice: Skills

Determine whether each pair of ratios is proportional.

1 $\frac{14}{2}$ _____ $\frac{7}{1}$

2 $\frac{3}{4}$ _____ $\frac{9}{16}$

3 $\frac{3}{8}$ _____ $\frac{12}{32}$

4 $\frac{2}{5}$ _____ $\frac{18}{45}$

5 $\frac{3}{9}$ _____ $\frac{21}{42}$

6 $\frac{14}{16}$ _____ $\frac{49}{56}$

7 $\frac{10}{12}$ _____ $\frac{20}{24}$

8 $\frac{15}{21}$ _____ $\frac{35}{48}$

Solve each proportion.

9 $\frac{3}{9} = \frac{\ell}{21}$ $\ell =$ _____

10 $\frac{7}{10} = \frac{35}{r}$ $r =$ _____

11 $\frac{4}{6} = \frac{n}{18}$ $n =$ _____

12 $\frac{8}{2} = \frac{t}{4}$ $t =$ _____

13 $\frac{7}{11} = \frac{b}{44}$ $b =$ _____

14 $\frac{9}{12} = \frac{x}{28}$ $x =$ _____

15 $\frac{6}{15} = \frac{10}{k}$ $k =$ _____

16 $\frac{10}{12} = \frac{m}{18}$ $m =$ _____

17 $\frac{1}{5} = \frac{y}{70}$ $y =$ _____

18 $\frac{6}{14} = \frac{15}{a}$ $a =$ _____

- 19 Nine students have 36 school books. How many students have 60 school books? _____
- 20 Twenty-eight cups of sugar are required for 14 cakes. How many cakes require 12 cups of sugar? _____
- 21 Eighty flowers make 8 bouquets. How many flowers make 11 bouquets? _____
- 22 Sixty eggs make 5 cartons. How many eggs make 3 cartons? _____
- 23 Six tables have 48 chairs. How many tables have 96 chairs? _____
- 24 Fifty-six buttons are used on 8 sweaters. How many sweaters use 63 buttons? _____
- 25 Fifty-four balloons are in 3 bags. How many bags have 126 balloons? _____
- 26 Seventy-five erasers are in 5 boxes. How many boxes have 120 erasers? _____
- 27 Eighty-one books are on 91 shelves. How many shelves hold 36 books? _____
- 28 Twelve cans of soup cost a total of \$6.40. How many cans of soup cost \$9.60? _____

Practice: Skills

Convert using the customary system of measurement.

- 1 6 ft = _____ in.
- 2 9 T = _____ lb
- 3 14 gal = _____ qt
- 4 8 yd = _____ ft
- 5 6 lb = _____ oz
- 6 5 c = _____ fl oz
- 7 3 mi = _____ ft
- 8 17 pt = _____ c
- 9 66 ft = _____ yd
- 10 13 qt = _____ pt

Convert using the metric system of measurement.

- 11 19 g = _____ mg
- 12 2 km = _____ m
- 13 320 mm = _____ cm
- 14 16 kL = _____ L
- 15 51,000 mg = _____ g
- 16 4 m = _____ cm
- 17 38 L = _____ mL
- 18 7,000 L = _____ kL
- 19 50 cm = _____ mm
- 20 18,000 g = _____ kg

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

- 21 12 c = _____ qt
- 22 16,000 lb = _____ T
- 23 6 m \approx _____ ft (1 m \approx 3.281 ft)
- 24 7 gal \approx _____ L (1 gal \approx 3.79 L)
- 25 5 oz \approx _____ g (1 oz \approx 28.35 g)
- 26 9 mi \approx _____ km (1 mi \approx 1.609 km)
- 27 2 kg = _____ mg
- 28 144 in. = _____ yd
- 29 96 qt = _____ gal
- 30 21,000 mm = _____ m

Practice: Skills

Find each total cost.

- 1 One can of soup is \$0.89. How much are 5 cans? _____
- 2 Three jars of pickles cost \$8.97. How much are 4 jars? _____
- 3 One-half gallon of ice cream is \$4.25. How much is 1 gallon? _____
- 4 One egg costs \$0.11. How much are a dozen? _____
- 5 Six boxes of crackers are \$18.96. How much are 9 boxes? _____
- 6 Four pounds of chicken cost \$17.25. How much are 7 pounds? _____
- 7 One gallon of milk costs \$4.29. How much are 3 gallons? _____
- 8 Two loaves of bread are \$3.58. How much are 5 loaves? _____
- 9 Five boxes of cereal cost \$17.50. How much are 6 boxes? _____
- 10 Seven apples are \$2.80. How much are 11 apples? _____

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

- 11 60 ounces in 5 bottles $\frac{\square}{\square}$ _____
- 12 45 drawers in 9 dressers $\frac{\square}{\square}$ _____
- 13 56 miles in 8 hours $\frac{\square}{\square}$ _____
- 14 24 people in 6 cars $\frac{\square}{\square}$ _____
- 15 7 errands in 2 hours $\frac{\square}{\square}$ _____
- 16 1,370 Calories in 5 pieces of pie $\frac{\square}{\square}$ _____
- 17 522 points on 6 quizzes $\frac{\square}{\square}$ _____
- 18 64 pages in 8 chapters $\frac{\square}{\square}$ _____
- 19 714 words typed in 17 minutes $\frac{\square}{\square}$ _____
- 20 \$9.24 for 8 items $\frac{\square}{\square}$ _____

Solve.

- 21 Akira can knit 4 scarves in 27 days. How many days would you expect it to take Akira to knit 6 scarves? _____
- 22 A factory uses 11.5 square yards of denim to make 5 pairs of jeans. How many square yards of denim do they use for 9 pairs of jeans? _____
- 23 Nina needs 315 beads to make 9 bracelets. How many beads does she need for 15 bracelets? _____
- 24 Jack mowed 3 lawns in 2 hours. How many lawns would you expect Jack to mow in 8 hours? _____

Practice: Skills

Find the value of n .

1 $\frac{4}{9} = \frac{n}{45}$ $n =$ _____

2 $\frac{24}{28} = \frac{6}{n}$ $n =$ _____

3 $\frac{3}{10} = \frac{12}{n}$ $n =$ _____

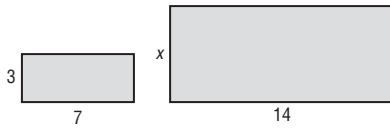
4 $\frac{10}{25} = \frac{n}{35}$ $n =$ _____

5 $\frac{12}{21} = \frac{n}{14}$ $n =$ _____

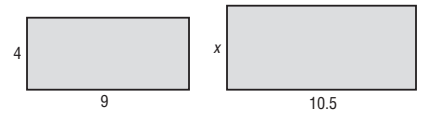
6 $\frac{2}{11} = \frac{6}{n}$ $n =$ _____

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

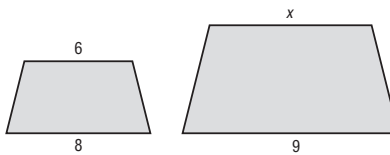
7 $x =$ _____



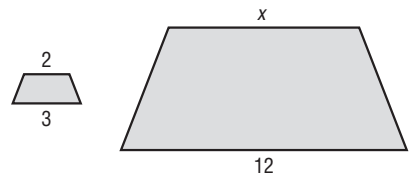
10 $x =$ _____



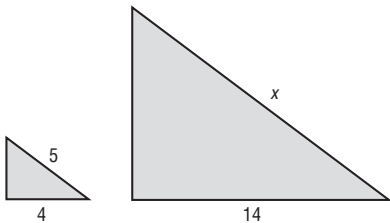
8 $x =$ _____



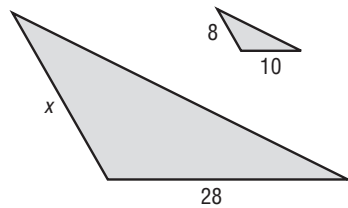
11 $x =$ _____



9 $x =$ _____

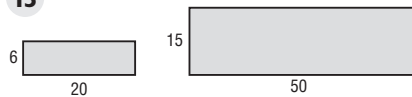


12 $x =$ _____

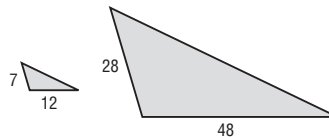


Determine if each pair of polygons is similar.

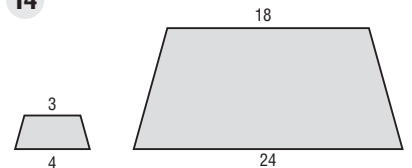
13 _____



15 _____



14 _____



16 _____

