

## Complete.

- ① 75 cm = 0.75 m
- ② 802 cm = 8.02 m
- ③ 251 km = 251,000 m
- ④ 0.95 mm = 0.095 cm
- ⑤ 0.46 cm = 4.6 mm
- ⑥ 32 m = 32,000 mm
- ⑦ 58 mm = 0.058 m
- ⑧ 2,581 m = 2.581 km
- ⑨ 35.6 mm = 3.56 cm
- ⑩ 2.92 cm = 29.2 mm

## Solve.

- ⑪ Jason ran 325 meters farther than Kim ran. Kim ran 4.2 kilometers. How many meters did Jason run? Estimate to check your answer.

4,525 m

Estimate: Possible estimate: 4,300 m

- ⑫ On each of 3 days, Derrick rode 6.45 km to school, 150 meters to the library, and then 500 meters back home. How many kilometers did he ride for the 3 days altogether?

21.3 km

- ⑬ Lisa wants to frame her little brother's drawing as a gift to her mother. The rectangular drawing is 43.5 centimeters by 934 millimeters. How many centimeters of wood framing will she need?

273.8 cm

- ⑭ Marguerite is building a box from strips of wood. She needs 78 pieces of wood that are each 29 centimeters long. The wood comes in boards that are 6 meters long. How many boards will she need? Explain.

4 boards; Possible explanation: She must first find out how many pieces of wood that length she can get from 1 board.  $6 \text{ m} \div 0.29 \text{ m} = 20$  pieces (20 cm left over).  $78 \div 20 = 3.9$ , so she will need 4 boards.

Multiply.

$$\begin{array}{r} 1 \quad 89 \\ \times 7 \\ \hline 623 \end{array}$$

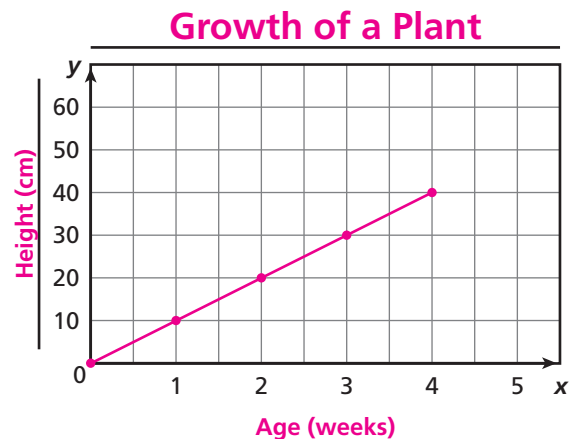
$$\begin{array}{r} 2 \quad 221 \\ \times 3 \\ \hline 663 \end{array}$$

$$\begin{array}{r} 3 \quad 6,077 \\ \times 6 \\ \hline 36,462 \end{array}$$

$$\begin{array}{r} 4 \quad 77 \\ \times 65 \\ \hline 5,005 \end{array}$$

Suppose a plant grows at the rate shown in the table.  
Use the table to complete Exercises 5 and 6.

Growth of a Plant	
Age (weeks)	Height (cm)
0	0
1	10
2	20
3	30
4	40



- 5 Write five ordered pairs that the data represent.

$(0, 0), (1, 10), (2, 20), (3, 30), (4, 40)$

- 6 Graph the ordered pairs. What does each axis of the graph represent? Title the graph and label each axis.

The x-axis represents age in weeks.

The y-axis represents height in centimeters.

- 7 **Stretch Your Thinking** Find the sum of 130 cm and 50 mm in meters. Show your work.

$130 \div 100 = 1.3$  or 1.3 m;  $50 \div 1,000 = 0.05$  or

0.05 m;  $1.3 \text{ m} + .05 \text{ m} = 1.35 \text{ m}$

Complete.

① 36 in. = 3 ft

② 12 ft = 4 yd

③ 36 in. = 1 yd

④ 48 in. = 4 ft

⑤ 6 ft = 2 yd

⑥ 108 in. = 3 yd

⑦  $7\frac{1}{2}$  ft = 90 in.

⑧ 66 in. =  $5\frac{1}{2}$  ft

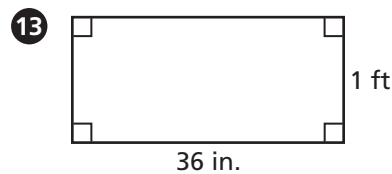
⑨ 6 yd = 216 in.

⑩ 12 yd = 432 in.

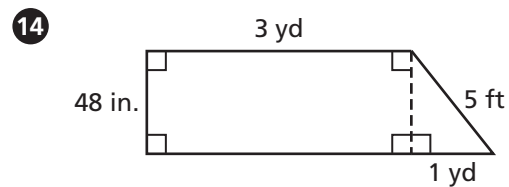
⑪  $1\frac{1}{4}$  yd =  $3\frac{3}{4}$  ft

⑫ 90 ft = 30 yd

Find the perimeter of each figure in feet.

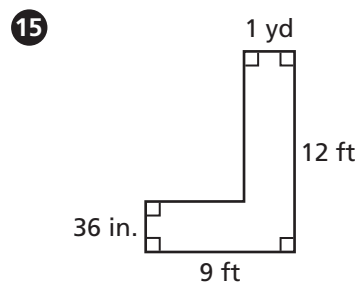


$P = \underline{8 \text{ ft}}$

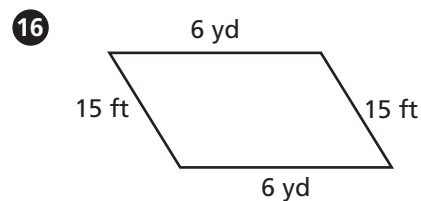


$P = \underline{30 \text{ ft}}$

Find the perimeter of each figure in yards.



$P = \underline{14 \text{ yd}}$



$P = \underline{22 \text{ yd}}$

Write an expression for the words.

- ① Multiply 12 by the sum of 8 and  $t$ .  $12 \cdot (8 + t)$
- ② Divide 10 by 4 and then subtract 6.2.  $10 \div 4 - 6.2$
- ③ Add the product of 7 and 10 to 80.  $80 + 7 \cdot 10$
- ④ Subtract  $\frac{1}{8}$  from  $\frac{5}{6}$ .  $\frac{5}{6} - \frac{1}{8}$

Simplify. Follow the Order of Operations.

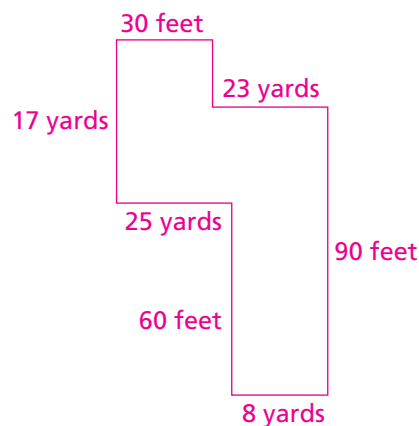
- ⑤  $12 - 7 + 9 - 2$   
12
- ⑥  $15 \div 0.3 + 6 \div 0.02$   
350
- ⑦  $(2\frac{3}{8} - \frac{1}{4}) \times \frac{1}{5}$   
 $\frac{17}{40}$
- ⑧  $\frac{1}{6} \cdot \frac{1}{6} \div \frac{1}{6}$   
 $\frac{1}{6}$
- ⑨  $(7.2 - 3.3) \cdot (0.5 + 0.5)$   
3.9
- ⑩  $36 \div (6.6 + 2.4) \cdot 4$   
16

Complete the equation.

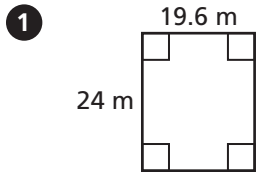
- ⑪  $14 \text{ m} = \underline{14,000} \text{ mm}$
- ⑫  $0.35 \text{ mm} = \underline{0.035} \text{ cm}$
- ⑬  $790 \text{ cm} = \underline{7.9} \text{ m}$
- ⑭  $0.88 \text{ cm} = \underline{8.8} \text{ mm}$
- ⑮  $782 \text{ km} = 782,000 \underline{\text{ m}}$
- ⑯  $58 \text{ cm} = \underline{0.58} \text{ m}$

- ⑰ **Stretch Your Thinking** Draw a figure composed of three different rectangles that has a perimeter of 140 yards. Use measurements in yards and feet to label the sides of your figure.

**Possible answer:**

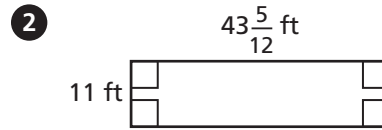


Find the perimeter and the area of the rectangle.



$$P = \underline{87.2 \text{ m}}$$

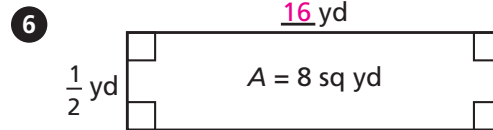
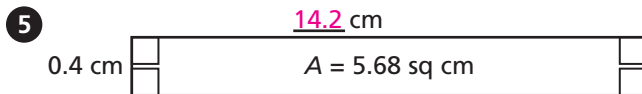
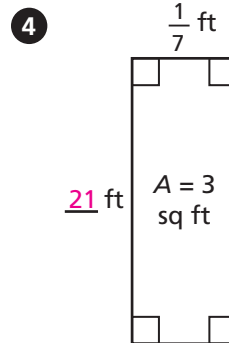
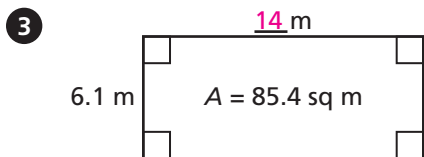
$$A = \underline{470.4 \text{ sq m}}$$



$$P = \underline{108\frac{5}{6} \text{ ft}}$$

$$A = \underline{477\frac{7}{12} \text{ sq ft}}$$

Find the side length of the rectangle.



Solve.

- 7 Gerard ran out of tile for his patio. The width of the remaining area is  $2\frac{2}{9}$  feet. The length of the remaining area is 7 feet. How much does Gerard have left to tile?

$$\underline{15\frac{5}{9} \text{ sq ft}}$$

- 8 Kyra is building a dollhouse. The carpet for the bedroom is 27 square inches. The length of the bedroom is 6 inches. How long is the width?

$$\underline{4.5 \text{ inches}}$$

The graph shown represents a skier traveling at a constant speed.

- 1 The points on the graph represent four ordered  $(x, y)$  pairs. Write the ordered pairs.

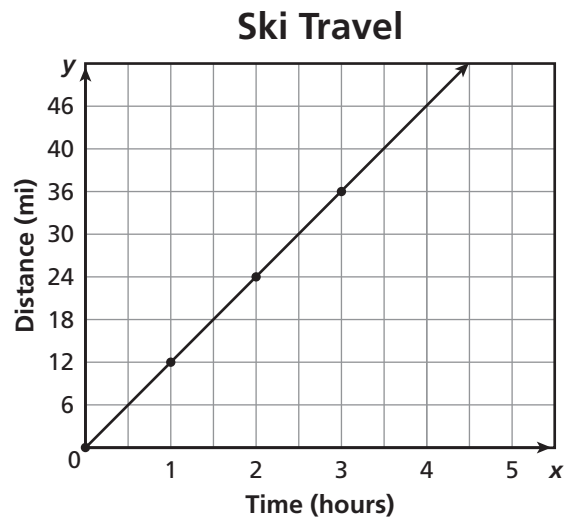
(0, 0) (1, 12) (2, 24) (3, 36)

- 2 Complete the table to show the relationship that time and distance share.

Time (hours)	0	1	2	3
Distance (miles)	0	12	24	36

- 3 At what constant rate of speed was the skier traveling? Explain how you know.

12 mph; Sample explanation: The graph passes through (1 hour, 12 miles).



Complete.

4  $24 \text{ in.} = \underline{2} \text{ ft}$

5  $27 \text{ ft} = \underline{9} \text{ yd}$

6  $3 \text{ ft} = \underline{36} \text{ in.}$

7  $\underline{180} \text{ in.} = 5 \text{ yd}$

8  $\underline{6} \text{ yd} = 18 \text{ ft}$

9  $\underline{7} \text{ ft} = 84 \text{ in.}$

10  $24 \text{ yd} = \underline{72} \text{ ft}$

11  $8 \text{ ft} = \underline{96} \text{ in.}$

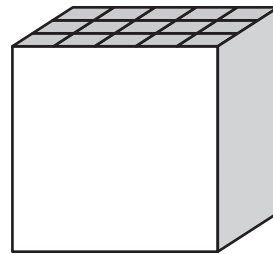
12  $\underline{252} \text{ ft} = 84 \text{ yd}$

- 13 **Stretch Your Thinking** Find the fractional side lengths of a rectangle that has a perimeter of  $64\frac{5}{6}$  inches. Then find the area of the rectangle.

Possible answer:  $20\frac{3}{4}$  in. by  $11\frac{2}{3}$  in.;  $A = 242\frac{1}{12}$  sq in.

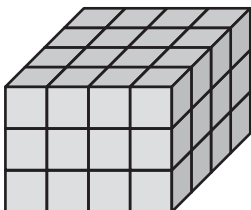
- 1 Alison had a box in the shape of a cube. She decided to use centimeter cubes to find the volume of the box. It took 75 centimeter cubes to fill the box with no gaps. What was the volume of the box?

75 cubic cm



Find the number of unit cubes and the volume.

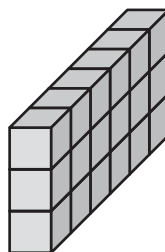
2



Number of unit cubes: 48

Volume: 48 cubic units

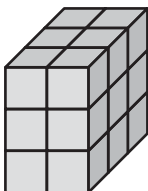
3



Number of unit cubes: 18

Volume: 18 cubic units

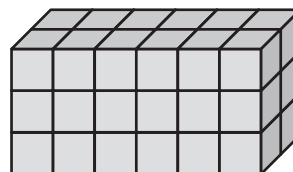
4



Number of unit cubes: 18

Volume: 18 cubic units

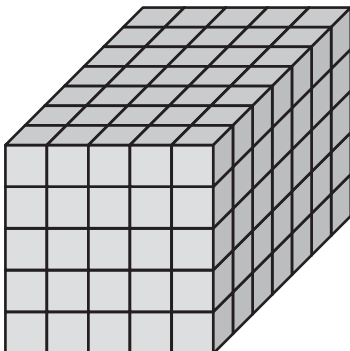
5



Number of unit cubes: 36

Volume: 36 cubic units

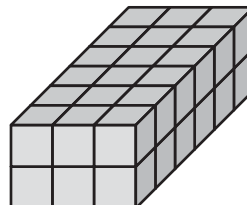
6



Number of unit cubes: 175

Volume: 175 cubic units

7



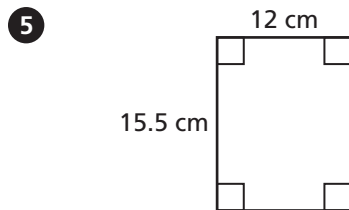
Number of unit cubes: 36

Volume: 36 cubic units

Write the computation in words. Answers may vary.

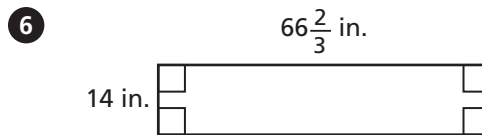
- 1  $4.5 \div 0.5 + 0.1$  Divide 4.5 by 0.5 and then add 0.1.
- 2  $6 \div \frac{1}{6}$  Divide 6 by  $\frac{1}{6}$ .
- 3  $4 \cdot (5 - 2)$  Multiply the difference of 5 and 2 by 4.
- 4  $11 - c$  Subtract  $c$  from 11.

Find the perimeter and the area of the rectangle.



$$P = \underline{55 \text{ cm}}$$

$$A = \underline{186 \text{ sq cm}}$$



$$P = \underline{161\frac{1}{3} \text{ in.}}$$

$$A = \underline{933\frac{1}{3} \text{ sq in.}}$$

- 7 **Stretch Your Thinking** Draw a sketch to show two figures that have the same number of unit cubes that look different from each other.

*Drawings will vary.*

*Check students' drawings.*



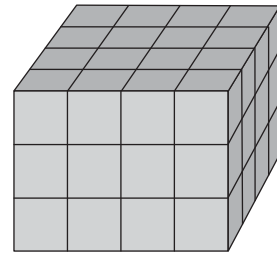
# 8-5 Homework

Name \_\_\_\_\_

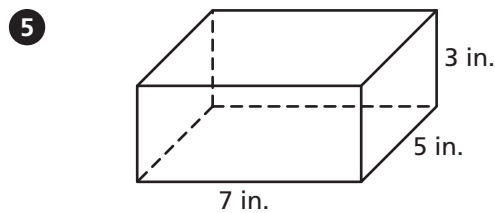
Date \_\_\_\_\_

Use the prism on the right to answer the questions.

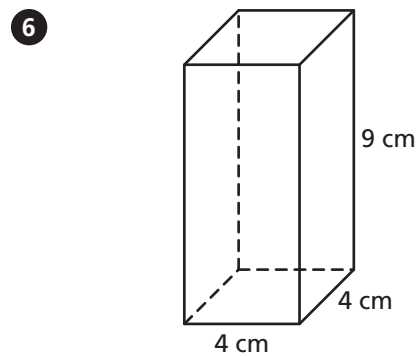
- 1 How many cubes are in 1 layer? 16
- 2 How many layers are in the prism? 3
- 3 Write a multiplication expression for the volume.  
 $(4 \times 4) \times 3$
- 4 What is the volume of the prism? 48 cubic units



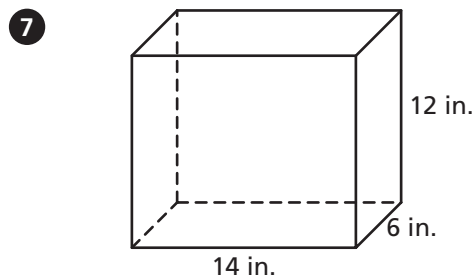
Find the volume.



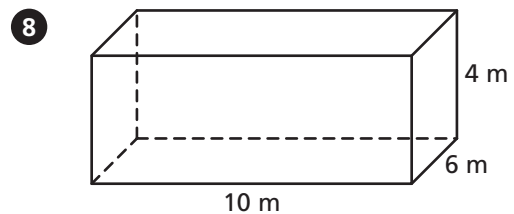
Volume: 105 cu in.



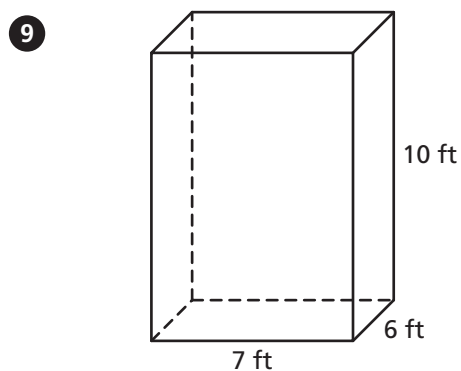
Volume: 144 cu cm



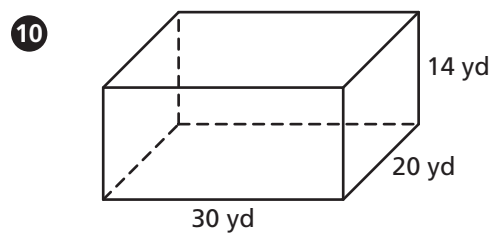
Volume: 1,008 cu in.



Volume: 240 cu m



Volume: 420 cu ft



Volume: 8,400 cu yd

Solve. Follow the Order of Operations.

1  $21 - 6 + 3 - 6$

12

2  $(7.9 - 5.1) \cdot (0.2 + 0.8)$

2.8

3  $6 \cdot 10 \div 5$

12

4  $\frac{1}{5} \cdot \frac{1}{5} \div \frac{1}{5}$

$\frac{1}{5}$

5  $(2\frac{3}{8} - \frac{1}{4}) \times \frac{1}{8}$

$\frac{17}{64}$

6  $\frac{5}{8} - 3 \cdot \frac{1}{16}$

$\frac{7}{16}$

7  $16 \div 0.2 + 15 \div 0.03$

580

8  $64 \div (6.6 + 1.4) \cdot 2$

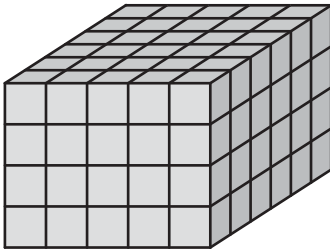
16

9  $0.7 - 0.9 \div 3 + 0.6$

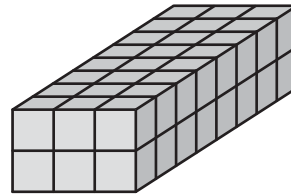
1

Find the number of unit cubes and the volume.

10



11



Number of unit cubes: \_\_\_\_\_ 120 \_\_\_\_\_

Volume: 120 cubic units

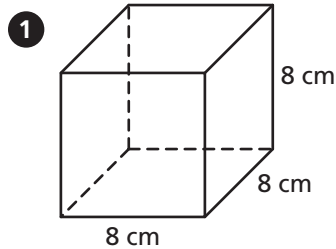
Number of unit cubes: \_\_\_\_\_ 48 \_\_\_\_\_

Volume: 48 cubic units

- 12 **Stretch Your Thinking** I'm a figure with six layers. Each of my layers is the same. My bottom layer has a perimeter of 28 units, and my volume is between 200 and 300 cubic units. What is my volume?

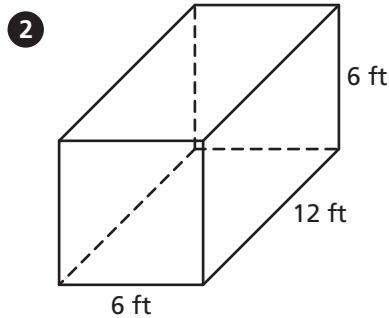
Possible dimensions:  $9 \times 5 \times 6 = 270$  cu. units

Write a numerical expression for the volume. Then calculate the volume.



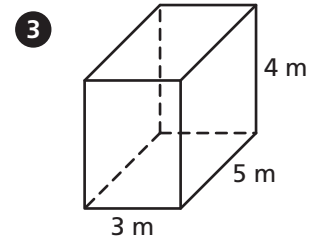
Expression:  $8 \times 8 \times 8$

Volume:  $512 \text{ cu cm}$



Expression:  $6 \times 12 \times 6$

Volume:  $432 \text{ cu ft}$



Expression:  $3 \times 5 \times 4$

Volume:  $60 \text{ cu m}$

Find the unknown dimension or volume of each rectangular prism.

4  $V = 176 \text{ cu cm}$

$l = 4 \text{ cm}$

$w = 4 \text{ cm}$

$h = 11 \text{ cm}$

5  $V = 168 \text{ cu yd}$

$l = 8 \text{ yd}$

$w = 7 \text{ yd}$

$h = 3 \text{ yd}$

6  $V = 90 \text{ cu in.}$

$l = 9 \text{ in.}$

$w = 2 \text{ in.}$

$h = 5 \text{ in.}$

Write an equation. Then solve. Possible equations are given.

- 7 Pattie built a rectangular prism with cubes. The base of her prism has 12 centimeter cubes. If her prism was built with 108 centimeter cubes, how many layers does her prism have?

$108 = 12 \times h$ ; 9 layers

- 8 Isabella cares for an aquarium that is 6 feet long and has a height of 4 feet. The aquarium needs 72 cubic feet of water to be completely filled. What is the width of the aquarium?

$72 = 6 \times w \times 4$ ; 3 ft

- 9 Ray's aquarium is 20 inches long, 20 inches wide, and has a height of 15 inches. Randal's aquarium is 40 inches long, 12 inches wide, and has a height of 12 inches. Whose aquarium has a greater volume? By how much?

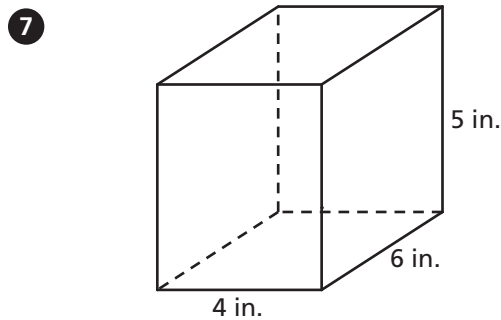
$(20 \times 20 \times 15) - (40 \times 12 \times 12) = d$ ; Ray's; 240 cu in.

Add or subtract.

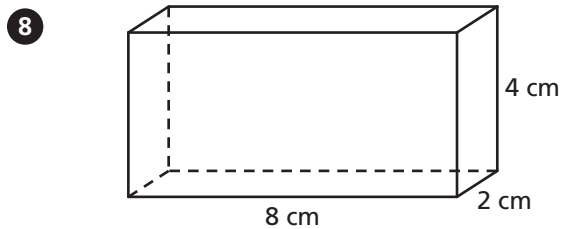
1  $0.45 + 0.77 = \underline{1.22}$       2  $0.4 + 0.08 = \underline{0.48}$       3  $6.9 - 3.44 = \underline{3.46}$

4  $7 - 2.2 = \underline{4.8}$       5  $0.66 + 0.96 = \underline{1.62}$       6  $5.7 - 0.9 = \underline{4.8}$

Find the volume.



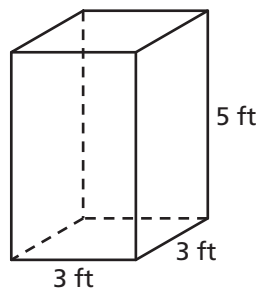
Volume: 120 cu in.



Volume: 64 cu cm

- 9 **Stretch Your Thinking** Give the dimensions of a crate that could be used to ship 6 of the boxes below. Allow for some air space between the boxes so they can fit in the crate.

Possible dimensions: 9.25 ft by 6.25 ft by 5.25 ft

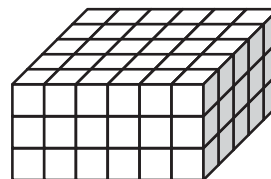


For each question, write whether you would measure for length, area, or volume.

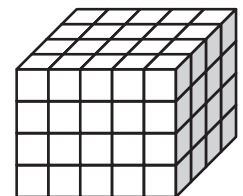
- 1 the amount of space inside a moving van volume
- 2 the number of tiles needed to cover a bathroom floor area
- 3 the distance from a porch to a tree length
- 4 the amount of water a tank holds volume
- 5 the height of a flagpole length

Solve.

- 6 A box is 5 inches long, 4 inches wide, and 1 inch deep. How much space is inside the box?  
20 cu in.
- 7 Aponi built a toy chest for her niece. It has a volume of 12 cubic feet. The chest is 3 feet long and 2 feet wide. How deep is it?  
2 ft
- 8 The rug in Alan's room has an area of 18 square feet. He is planning to buy another rug that is twice as long and twice as wide. What is the area of the new rug?  
72 sq ft
- 9 Each drawer in Monique's nightstand has a volume of 6 cubic decimeters. Each drawer in her dresser is twice as long, twice as wide, and twice as deep. What is the volume of one of Monique's dresser drawers?  
48 cu dm
- 10 Fong and Daphne built these structures. Who used more cubes? How many more?  
Fong; 10 more



Fong



Daphne

Solve.

$$\begin{array}{r} 1 \quad 3.8 \\ \times 5.4 \\ \hline 20.52 \end{array}$$

$$\begin{array}{r} 2 \quad 0.30 \\ \times 6.7 \\ \hline 2.01 \end{array}$$

$$\begin{array}{r} 3 \quad 3.3 \\ \times 0.78 \\ \hline 2.574 \end{array}$$

$$\begin{array}{r} 4 \quad 0.04 \\ \times 7.3 \\ \hline 0.292 \end{array}$$

$$\begin{array}{r} 5 \quad 0.6 \\ \times 5.14 \\ \hline 3.084 \end{array}$$

$$\begin{array}{r} 6 \quad 8.3 \\ \times 2.8 \\ \hline 23.24 \end{array}$$

Find the unknown dimension or volume of each rectangular prism.

7  $V = \underline{252 \text{ cu cm}}$

$l = 7 \text{ cm}$

$w = 4 \text{ cm}$

$h = 9 \text{ cm}$

8  $V = 200 \text{ cu yd}$

$l = \underline{8 \text{ yd}}$

$w = 5 \text{ yd}$

$h = 5 \text{ yd}$

9  $V = 160 \text{ cu in.}$

$l = 10 \text{ in.}$

$w = \underline{4 \text{ in.}}$

$h = 4 \text{ in.}$

10  $V = \underline{480 \text{ cu cm}}$

$l = 10 \text{ cm}$

$w = 8 \text{ cm}$

$h = 6 \text{ cm}$

11  $V = 297 \text{ cu m}$

$l = \underline{11 \text{ m}}$

$w = 9 \text{ m}$

$h = 3 \text{ m}$

12  $V = 126 \text{ cu in.}$

$l = 9 \text{ in.}$

$w = \underline{2 \text{ in.}}$

$h = 7 \text{ in.}$

- 13 **Stretch Your Thinking** Give one real world example for measuring each of the following: perimeter, area, volume.

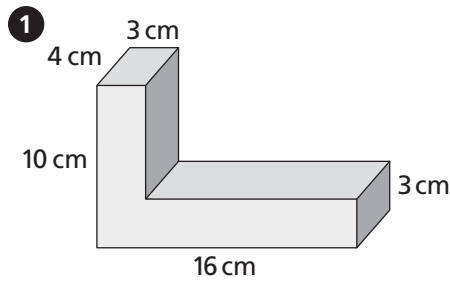
Possible answers: the amount of fencing to go

around a play area; the amount of wood flooring

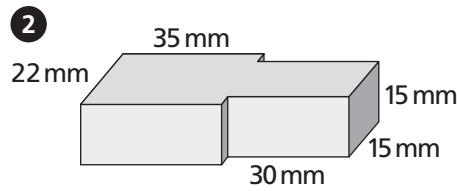
to buy to cover your living room; the amount

of water to put into a fish tank

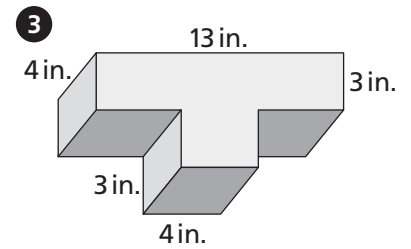
Find the volume of each composite solid figure.



276 cubic cm



18,300 cubic mm



204 cubic in.

- 4 The exterior of a refrigerator is shaped like a rectangular prism, and measures  $2\frac{2}{3}$  feet wide by  $5\frac{1}{2}$  feet high by  $2\frac{1}{2}$  feet deep. What amount of space does the refrigerator take up?

$36\frac{2}{3}$  cubic feet

- 5 In the space below, draw a composite solid of your own design that is made up of two prisms. Write the dimensions of your design, and then calculate its volume.

Drawing may vary. Check students' drawings and answers.

## Divide

$$\textcircled{1} \begin{array}{r} 70 \\ 0.7 \overline{)49} \end{array}$$

$$\textcircled{2} \begin{array}{r} 1,000 \\ 0.05 \overline{)50} \end{array}$$

$$\textcircled{3} \begin{array}{r} 0.8 \\ 0.8 \overline{)0.64} \end{array}$$

$$\textcircled{4} \begin{array}{r} 600 \\ 0.06 \overline{)36} \end{array}$$

$$\textcircled{5} \begin{array}{r} 3,132 \\ 0.3 \overline{)939.6} \end{array}$$

$$\textcircled{6} \begin{array}{r} 455 \\ 0.06 \overline{)27.3} \end{array}$$

## Solve.

- $\textcircled{7}$  A fish tank is 20 feet long, 12 feet wide, and 10 feet deep. What is the volume of the fish tank?

2,400 cubic feet

- $\textcircled{8}$  **Stretch Your Thinking** Draw a composite solid in the space below using two different rectangular prisms. Label the length and width using fractions of units. The figures do not need to be to scale. Find the volume of the figure.

Drawings will vary. Check students' drawings.



Complete.

- |                             |                             |
|-----------------------------|-----------------------------|
| ① 5,811 mL = <u>5.811</u> L | ② 297 L = <u>0.297</u> kL   |
| ③ 1.09 kL = 1,090 <u>L</u>  | ④ 32,500 mL = <u>32.5</u> L |
| ⑤ 53.1 L = <u>53,100</u> mL | ⑥ 5.66 L = <u>5,660</u> mL  |
| ⑦ 2,848 mL = <u>2.848</u> L | ⑧ 431 L = <u>0.431</u> kL   |
| ⑨ 0.56 L = <u>560</u> mL    | ⑩ 0.78 L = 780 <u>mL</u>    |

Solve.

- ⑪ Jennifer made 5 L of punch for her party. Her brother made another 750 mL. If they combine the two batches, how many 180 mL servings would they have? Would there be any punch left over? If so, how much?

31 servings; yes; 170 mL

- ⑫ On an average day, a horse might drink 50 L, a sheep might drink 4 L, and a chicken might drink 200 mL. How much water would a farm with 3 horses, 15 sheep, and 12 chickens need for a day?

212.4 L

- ⑬ Terrell has a water purifier for backpacking. It will purify 1 liter of water in 1 minute. How long would it take Terrell to purify enough water for 4 canteens that each hold 750 mL, and two that each hold 1.5 L?

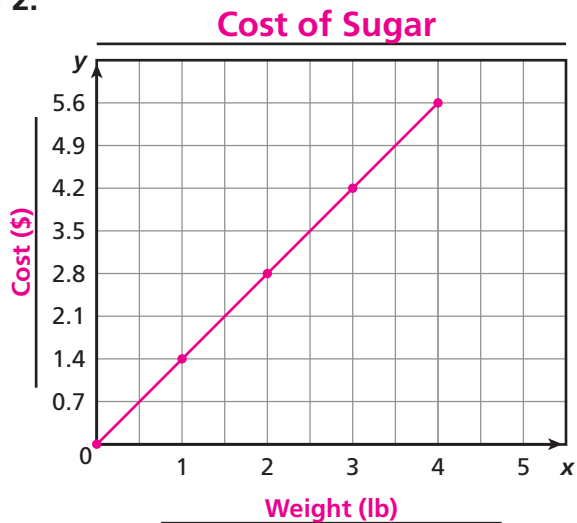
6 minutes

- ⑭ The Institute of Medicine determined that a man should drink 3 liters of fluids a day and a woman should drink 2.2 liters. Mr. Morrison drank 880 mL of water at breakfast and Mrs. Morrison drank 700 mL. How much more will they both need to drink combined to meet the recommended amounts for the day?

3.62 L

Suppose the cost of sugar changes at the rate shown in the table. Use the table to complete Exercises 1 and 2.

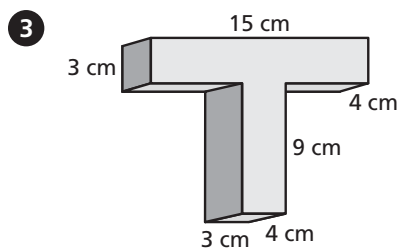
Cost of Sugar	
Weight (lb)	Cost (\$)
0	\$0
1	\$1.40
2	\$2.80
3	\$4.20
4	\$5.60



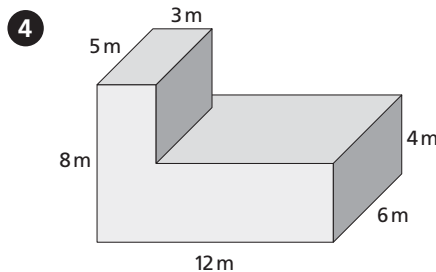
- 1 Write five ordered pairs that the data represent.  
(0, 0), (1, 1.4), (2, 2.8), (3, 4.2), (4, 5.6)

- 2 Graph the ordered pairs. What does each axis of the graph represent? Title the graph and label each axis.  
The x-axis represents weight in pounds;  
the y-axis represents cost in dollars.

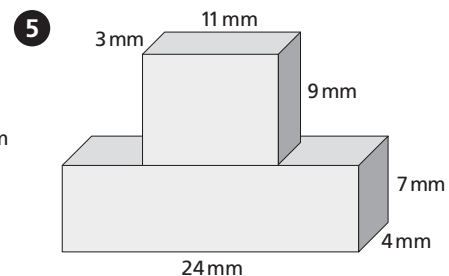
Find the volume of each composite solid.



288 cubic cm



348 cubic m



969 cubic mm

- 6 **Stretch Your Thinking** Shannon pours four different liquid ingredients into a bowl. The sum of the liquid ingredients is 8.53 liters. Two of her measurements are in liters and two of her measurements are in milliliters. Give an example of possible measurements for Shannon's four liquids.

Possible example: 2.5 L, 4 L, 2,000 mL, 30 mL

# 8-10 Homework

Name \_\_\_\_\_

Date \_\_\_\_\_

Complete.

- 1 973 mg = 0.973 g
- 2 0.058 g = 58 mg
- 3 10.64 kg = 10,640 g
- 4 4.001 kg = 4,001,000 mg
- 5 29 g = 0.029 kg
- 6 7 mg = 0.007 g
- 7 3.7 g = 3,700 mg
- 8 84 g = 0.084 kg

Solve.

- 9 The mass of substances left in a sample after the liquid is evaporated is called the *total dissolved solids*. Kim split up 2 liters of water into three different samples and boiled all the liquid away in each. The masses of solids left in the three samples were 2.025 grams, 457 mg, and 589 mg. Using the table at the right, how should Kim classify the water?

Total Dissolved Solids in 1 Liter of Solution	
fresh	< 1,000 mg
brackish	1,000 to 10,000 mg
saline	> 10,000 mg

$(2,025 + 457 + 589) \div 2 = 1,535.5$ ; brackish

- 10 Jamal watched his older brother Robert lift weights. The bar alone had a mass of 20 kg. On the bar he had two 11.4 kg weights, two 4.5 kg weights, and four 450 g weights. What mass was Robert lifting?

53.6 kg

- 11 Barry bought 25 kg of fish-flavored cat food and 35 kg of chicken-flavored cat food for the cat rescue center. He is going to divide the cat food into packets of 300 grams. How many packets will he make?

200 packets

Greyson rides his bike at a constant rate. In 30 minutes, Greyson can bike 7 miles.

- 1 Complete the table to show the distance Greyson can ride in 0, 30, 60, and 90 minutes.

Time (min)	0	30	60	90
Distance (mi)	0	7	14	21

- 2 Write the ordered  $(x, y)$  pairs the data represent. Then graph the points and extend the line.

(0, 0) (30, 7) (60, 14) (90, 21)

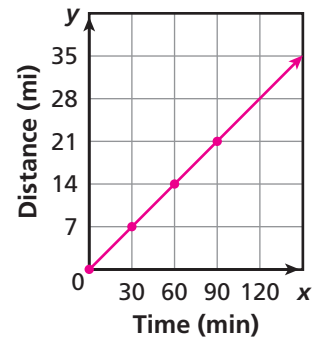
- 3 How far would you expect Greyson to ride in 105 minutes? Explain your answer.

about  $24\frac{1}{2}$  miles; Possible explanation: The time is

halfway between 90 min and 120 min so I would

expect the distance to be halfway between 21 mi and 28 mi.

Biking Distance



Complete the equation.

4  $435 \text{ L} = \underline{0.435} \text{ kL}$

5  $6.71 \text{ L} = \underline{6,710} \text{ mL}$

6  $86,300 \text{ mL} = \underline{86.3} \text{ L}$

7  $109 \text{ L} = \underline{0.109} \text{ kL}$

8  $5,669 \text{ mL} = \underline{5.669} \text{ L}$

9  $30.8 \text{ L} = \underline{30,800} \text{ mL}$

10  $9.12 \text{ kL} = 9,120 \underline{\text{ L}}$

11  $9,235 \text{ mL} = \underline{9.235} \text{ L}$

- 12 **Stretch Your Thinking** Write three measurements using grams and three measurements using milligrams that total 15.4 grams.

Possible answer: 3.5 g, 2.7 g, 6.2 g, 444 mg,

1,098 mg, 1,458 mg

# 8-11 Homework

Name \_\_\_\_\_

Date \_\_\_\_\_

Complete.

1 2 pt = 1 qt

2 4 qt = 1 gal

3 2 c = 1 pt

4 3 qt = 6 pt

5 1 qt = 4 c

6 5 gal = 20 qt

7 13 qt = 52 c

8 23 qt = 46 pt

9 112 c = 7 gal

10  $11\frac{1}{2}$  gal = 46 qt

11 112 c = 56 pt

12 75 pt =  $37\frac{1}{2}$  qt

Write a fraction.

13 What fraction of 1 gallon is 1 quart?  
 $\frac{1}{4}$

14 What fraction of 1 quart is 3 cups?  
 $\frac{3}{4}$

15 What fraction of 1 gallon is 5 cups?  
 $\frac{5}{16}$

16 What fraction of 1 pint is 1 cup?  
 $\frac{1}{2}$

Solve.

*Show your work.*

17 Cesar bought 2 bottles of juice that each hold 2 quarts and another bottle that holds  $1\frac{1}{2}$  gallons of juice. How many quarts of juice did he buy?  
10 qt

18 Samantha saw two bottles of ketchup at the store for the same price. One bottle contained 4 pints of ketchup, and the other contained 1.25 quarts of ketchup. Which bottle was the better bargain?  
The 4-pint bottle

19 A pitcher is full of lemonade. Which unit of liquid volume best describes the amount of lemonade in the pitcher? Explain.  
Accept reasonable answers and explanations.  
The capacity of a lemonade pitcher is likely to be measured in quarts, or gallons if the capacity is, for example, 4 quarts.

Divide.

①  $5 \overline{)2,245}$  <sup>449</sup>

②  $6 \overline{)3,277}$  <sup>546 R1</sup>

③  $9 \overline{)4,558}$  <sup>506 R4</sup>

④  $56 \overline{)1,344}$  <sup>24</sup>

⑤  $47 \overline{)3,619}$  <sup>77</sup>

⑥  $23 \overline{)2,047}$  <sup>89</sup>

⑦  $91 \overline{)4,315}$  <sup>47 R38</sup>

⑧  $62 \overline{)4,030}$  <sup>65</sup>

⑨  $18 \overline{)1,241}$  <sup>68 R17</sup>

Complete.

⑩ 5 mg = 0.005 g

⑪ 13.45 kg = 13,450 g

⑫ 66 g = 0.066 kg

⑬ 0.021 g = 21 mg

⑭ 5.003 kg = 5,003,000 mg

⑮ 782 mg = 0.782 g

⑯ **Stretch Your Thinking** What fraction of a gallon is 3 pints? $\frac{3}{8}$

**8-12  
Homework**

Name \_\_\_\_\_

Date \_\_\_\_\_

**Complete.**

① 1 lb = 16 oz

② 2 T = 4,000 lb

③ 32 oz = 2 lb

④ 1,000 lb = 0.5 T

⑤ 4 lb = 64 oz

⑥ 10,000 lb = 5 T

**Write a mixed number in simplest form to represent the number of pounds equivalent to each number of ounces.**

⑦ 40 oz =  $2\frac{1}{2}$  lb

⑧ 50 oz =  $3\frac{1}{8}$  lb

⑨ 44 oz =  $2\frac{3}{4}$  lb

⑩ 68 oz =  $4\frac{1}{4}$  lb

⑪ 22 oz =  $1\frac{3}{8}$  lb

⑫ 94 oz =  $5\frac{7}{8}$  lb

**Solve.***Show your work.*

- ⑬ At a garden center, grass seed sells for \$8 per pound. Kalil spent \$10 on grass seed. What amount of seed did he buy?

$1\frac{1}{4}$  lb

- ⑭ Two boxes of tea weigh 3 oz. The Tea Time Tasty Tea Company packs 112 boxes in a case of tea. How many pounds does each case of tea weigh?

$10\frac{1}{2}$  lb

- ⑮ Juli uses 12 ounces of cheese in her potato soup recipe. Her recipe yields 8 servings. If Juli needs enough for 20 servings, how many pounds of cheese will she need?

$1\frac{7}{8}$  lb

- ⑯ At a grocery store, salted peanuts in the shell cost 30¢ per ounce. Is \$5.00 enough money to buy 1 pound of peanuts? If it is, what amount of money will be left over?

yes; 20¢ or \$0.20

Complete the pattern.

$$\begin{aligned} \textcircled{1} \quad 5 \times 10^1 &= 5 \times 10 = \underline{50} \\ 5 \times 10^2 &= 5 \times 100 = \underline{500} \\ 5 \times 10^3 &= 5 \times 1,000 = \underline{5,000} \\ 5 \times 10^4 &= 5 \times 10,000 = \underline{50,000} \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad 45 \times 10^1 &= \underline{45 \times 10} = 450 \\ 45 \times 10^2 &= \underline{45 \times 100} = 4,500 \\ 45 \times 10^3 &= \underline{45 \times 1,000} = 45,000 \\ 45 \times 10^4 &= \underline{45 \times 10,000} = 450,000 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad 17 \times 10^1 &= 17 \times 10 = \underline{170} \\ 17 \times 10^2 &= 17 \times 100 = \underline{1,700} \\ 17 \times 10^3 &= 17 \times 1,000 = \underline{17,000} \\ 17 \times 10^4 &= 17 \times 10,000 = \underline{170,000} \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad 342 \times 10^1 &= \underline{342 \times 10} = 3,420 \\ 342 \times 10^2 &= 342 \times 100 = \underline{34,200} \\ 342 \times 10^3 &= \underline{342 \times 1,000} = 342,000 \\ 342 \times 10^4 &= 342 \times 10,000 = \underline{3,420,000} \end{aligned}$$

Solve.

$$\textcircled{5} \quad 8 \text{ qt} = \underline{16} \text{ pt}$$

$$\textcircled{6} \quad 2 \text{ qt} = \underline{8} \text{ c}$$

$$\textcircled{7} \quad \underline{4} \text{ c} = 2 \text{ pt}$$

$$\textcircled{8} \quad 80 \text{ cups} = \underline{5} \text{ gal}$$

$$\textcircled{9} \quad 9\frac{1}{2} \text{ gal} = \underline{38} \text{ qt}$$

$$\textcircled{10} \quad 80 \text{ cups} = \underline{40} \text{ pt}$$

$$\textcircled{11} \quad \underline{6} \text{ qt} = 24 \text{ cups}$$

$$\textcircled{12} \quad \underline{64} \text{ pt} = 32 \text{ qt}$$

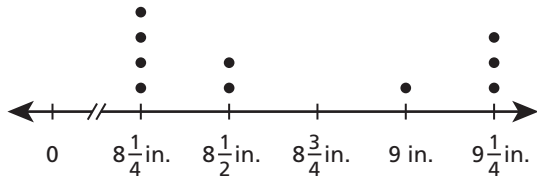
$$\textcircled{13} \quad \underline{12\frac{1}{2}} \text{ qt} = 25 \text{ pt}$$

- 14 Stretch Your Thinking** Divide 15 pounds of rice into four unequal measures using ounces.

Possible answer: 24 oz + 48 oz + 72 oz + 96 oz



- 1 Perry is growing maple saplings. After 3 weeks, he measured the saplings to the nearest quarter inch and drew this line plot with the data. Use the line plot to answer questions about the saplings.



**Heights of the Saplings  
After 3 Weeks**

- a. How many saplings were there?

10

- b. How many saplings were less than 9 inches tall?

6

- c. What is the combined height of all the saplings?

$86\frac{3}{4}$  inches

- 2 As a volunteer at the animal shelter, Uma weighed all the puppies. She made a list of the weights as she weighed them. The puppies weights were  $3\frac{3}{4}$  lb,  $4\frac{1}{4}$  lb,  $3\frac{1}{2}$  lb,  $3\frac{3}{4}$  lb,  $3\frac{1}{4}$  lb,  $3\frac{3}{4}$  lb,  $3\frac{1}{2}$  lb,  $4\frac{1}{4}$  lb, and  $3\frac{3}{4}$  lb.

- a. Draw a line plot of the puppies' weights.

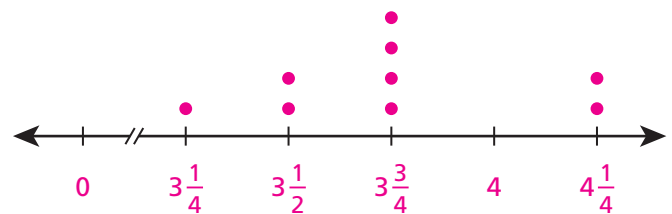
- b. Use the line plot to write and answer a question about the data.

Questions will vary. Possible

question: How many puppies

weighed at least  $3\frac{3}{4}$  pounds?

Answer: 6 puppies



**Weights of Puppies (lb)**

Write an equation to solve each problem.

Show your work.

Equations may vary.

- ① At the school bookstore, Harrison purchases 3 notebooks for \$2.50 each, 10 pens for \$0.35 each, and 5 mechanical pencils for \$0.89 each. By what amount ( $a$ ) is the cost of the mechanical pencils greater than the cost of the pens?

$$a = (5 \cdot \$0.89) - (10 \cdot \$0.35); a = \$0.95$$

- ② This week an employee is scheduled to work 6 hours each day Monday through Friday, and  $3\frac{1}{2}$  hours on Saturday morning. If the employee's goal is to work 40 hours, how many additional hours ( $h$ ) must he work?

$$h = 40 - (6 \cdot 5 + 3\frac{1}{2}); h = 6.5 \text{ or } 6\frac{1}{2} \text{ hours}$$

Complete.

③ 6 T = 12,000 lb

④ 3 lb = 48 oz

⑤ 80 oz = 5 lb

⑥ 5,000 lb = 2.5 T

⑦ 8 lb = 128 oz

⑧ 20,000 lb = 10 T

Write a mixed number in simplest form to represent the number of pounds equivalent to each number of ounces.

⑨ 66 oz =  $4\frac{1}{8}$  lb

⑩ 52 oz =  $3\frac{1}{4}$  lb

⑪ 24 oz =  $1\frac{1}{2}$  lb

⑫ 76 oz =  $4\frac{3}{4}$  lb

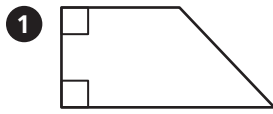
⑬ 82 oz =  $5\frac{1}{8}$  lb

⑭ 46 oz =  $2\frac{7}{8}$  lb

- ⑮ **Stretch Your Thinking** List three different real world situations in which a line plot would be the best choice to organize and display the data.

Possible answer: the number of video games owned by each class member;  
the number of wins for each team in a league;  
the ages, in years, of all of the United States women's gymnastic team members

Circle all the names that describe the shape.



quadrilateral trapezoid

parallelogram rhombus

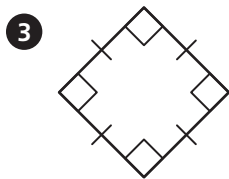
rectangle square



quadrilateral trapezoid

parallelogram rhombus

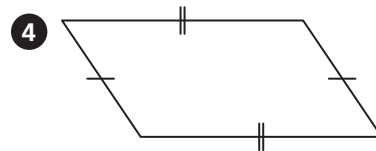
rectangle square



quadrilateral trapezoid

parallelogram rhombus

rectangle square



quadrilateral trapezoid

parallelogram rhombus

rectangle square

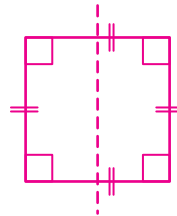
Sketch a shape that fits the description, if possible.

Sketches will vary. Samples are given.

5 a trapezoid with two right angles



6 a rhombus with a line of symmetry



7 a parallelogram with a right angle that is not a rectangle  
not possible

8 a rectangle with opposite sides that are not congruent  
not possible

Add or subtract.

$$\begin{array}{r} \textcircled{1} \quad \frac{5}{6} \\ - \frac{1}{3} \\ \hline \frac{1}{2} \end{array}$$

$$\begin{array}{r} \textcircled{2} \quad \frac{3}{4} \\ - \frac{5}{8} \\ \hline \frac{1}{8} \end{array}$$

$$\begin{array}{r} \textcircled{3} \quad \frac{1}{6} \\ + \frac{2}{3} \\ \hline \frac{5}{6} \end{array}$$

$$\begin{array}{r} \textcircled{4} \quad \frac{5}{9} \\ + \frac{1}{3} \\ \hline \frac{8}{9} \end{array}$$

$$\begin{array}{r} \textcircled{5} \quad 1\frac{4}{9} \\ + 4\frac{2}{3} \\ \hline 6\frac{1}{9} \end{array}$$

$$\begin{array}{r} \textcircled{6} \quad 6\frac{4}{5} \\ - 2\frac{1}{10} \\ \hline 4\frac{7}{10} \end{array}$$

- 7** Dayna surveyed her classmates to find out how many e-mails they send per day. Then, she drew this line plot with the data. Use the line plot to answer questions about the e-mails sent.

- a. How many classmates were surveyed?

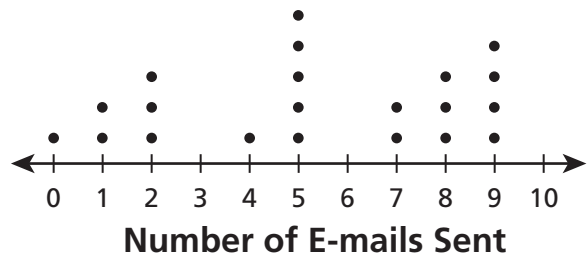
21

- b. How many classmates sent fewer than 5 e-mails?

7

- c. How many classmates sent at least 7 e-mails?

9



- 8 Stretch Your Thinking** Explain why a square is always a rectangle but a rectangle is not always a square.

Possible answer: A square is a rectangle because opposite sides are parallel and the same length, and its angles are 90°. A rectangle is not always a square because all of its sides do not have to be the same length.

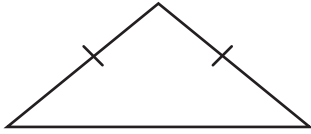
**8-15**  
**Homework**

Name \_\_\_\_\_

Date \_\_\_\_\_

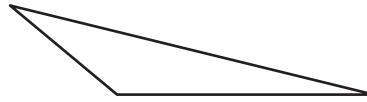
Circle all the names that describe the shape.

1



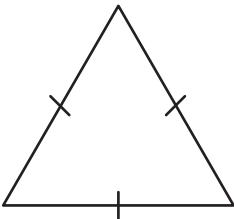
- acute                      scalene
- right                      **isosceles**
- obtuse**                      equilateral

2



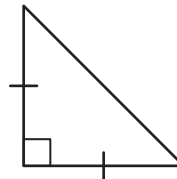
- acute                      **scalene**
- right                      isosceles
- obtuse**                      equilateral

3



- acute**                      scalene
- right                      **isosceles**
- obtuse                      **equilateral**

4



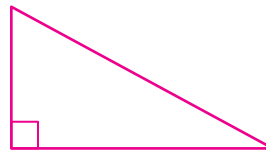
- acute                      scalene
- right**                      **isosceles**
- obtuse                      equilateral

Sketch a shape that fits the description, if possible.

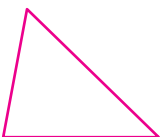
Sketches will vary. Samples are given.

5 a triangle with two obtuse angles  
**not possible**

6 a right scalene triangle



7 an acute triangle that is not equilateral



8 a scalene triangle with a line of symmetry  
**not possible**

Solve.

1  $\frac{1}{5} \div 6 = \underline{\frac{1}{30}}$

2  $7 \div \frac{1}{4} = \underline{28}$

3  $\frac{6}{7} \cdot \frac{1}{5} = \underline{\frac{6}{35}}$

4  $\frac{1}{10} \div 5 = \underline{\frac{1}{50}}$

5  $4 \cdot \frac{1}{5} = \underline{\frac{4}{5}}$

6  $\frac{1}{3} \cdot 14 = \underline{4\frac{2}{3}}$

Find each product by first rewriting each mixed number as a fraction.

7  $\frac{3}{5} \cdot 1\frac{1}{6} = \underline{\frac{3}{5} \cdot \frac{7}{6} = \frac{21}{30} = \frac{7}{10}}$

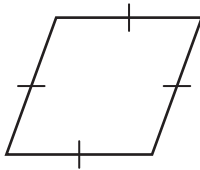
8  $2\frac{2}{3} \cdot 6 = \underline{\frac{8}{3} \cdot \frac{6}{1} = \frac{48}{3} = 16}$

9  $4\frac{5}{6} \cdot 2\frac{1}{5} = \underline{\frac{29}{6} \cdot \frac{11}{5} = \frac{319}{30} = 10\frac{19}{30}}$

10  $4\frac{1}{4} \cdot \frac{3}{8} = \underline{\frac{17}{4} \cdot \frac{3}{8} = \frac{51}{32} = 1\frac{19}{32}}$

Circle all the names that describe the shape.

11



quadrilateral

trapezoid

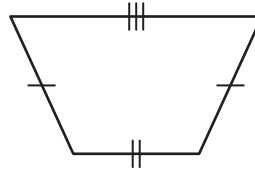
parallelogram

rhombus

rectangle

square

12



quadrilateral

trapezoid

parallelogram

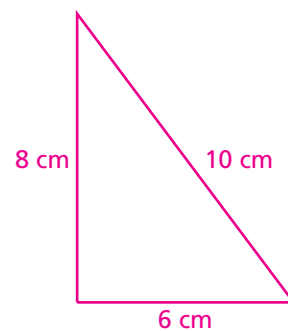
rhombus

rectangle

square

- 13 **Stretch Your Thinking** The sum of the lengths of any two sides of a triangle must be greater than the length of the third side. List three side lengths that will form a triangle. Use a ruler and draw the triangle.

Possible answer: 6 cm, 8 cm, 10 cm.



Draw a shape that fits the description. Mark all congruent segments and right angles.

*Drawings will vary. Check students' work.*

- 1 an open shape made up of one or more curves
- 2 a concave quadrilateral with an acute angle and exactly two congruent sides
- 3 a closed shape that is not a polygon made entirely of segments
- 4 a convex pentagon with two parallel sides and two perpendicular sides
- 5 a concave hexagon with two pairs of congruent sides
- 6 a quadrilateral with four congruent sides that is not regular

Simplify. Follow the Order of Operations.

1  $61 - 300 \div 6$

11

2  $0.8 \div (0.09 - 0.07)$

40

3  $4 \cdot 9 - 12 \div 3$

32

4  $(\frac{5}{12} + \frac{3}{4}) \cdot 12$

14

5  $44 + 29 - 13 + 34$

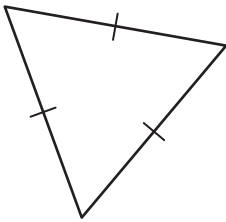
94

6  $100 \div (6 - 2) \cdot 5$

125

Circle all the names that describe the shape.

7

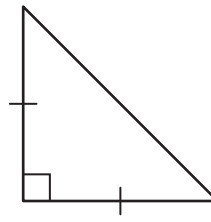


acute scalene

right isosceles

obtuse equilateral

8



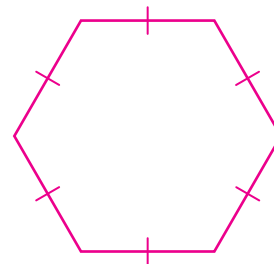
acute scalene

right isosceles

obtuse equilateral

- 9 **Stretch Your Thinking** Write a description of a two-dimensional shape and then draw the shape.

Possible answer: a convex regular hexagon





Solve. **Answers and drawings will vary.**

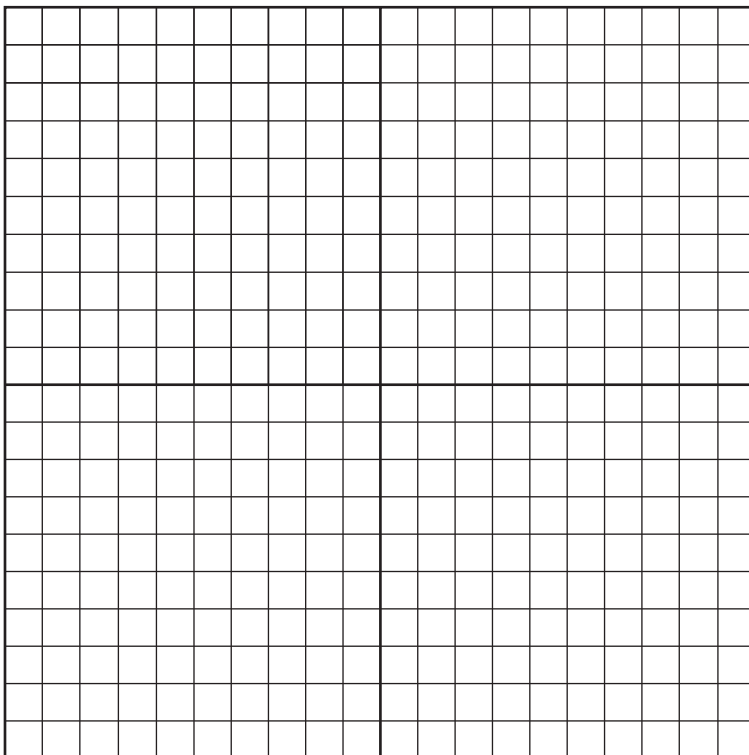
- 1 On the grid below, draw and label an aquarium shaped like a rectangular prism with a volume of 8,000 cubic inches. (Hint: A cube is a rectangular prism, and  $2 \times 2 \times 2 = 8$ .)

- 2 Calculate the perimeter of the top of your aquarium. Then calculate the area of its base.

$P =$  \_\_\_\_\_

$A =$  \_\_\_\_\_

- 3 The rectangular prism you drew for Problem 1 is not the only rectangular prism that has a volume of 8,000 cubic inches. Other prisms are possible. On the grid below, use a new color and draw a different rectangular prism that has a volume of 8,000 cubic inches.



Complete the pattern.

$$\textcircled{1} 22 \times 10^1 = 22 \times 10 = \underline{220}$$

$$22 \times 10^2 = 22 \times 100 = \underline{2,200}$$

$$22 \times 10^3 = 22 \times 1,000 = \underline{22,000}$$

$$22 \times 10^4 = 22 \times 10,000 = \underline{220,000}$$

$$\textcircled{2} 412 \times 10^1 = \underline{412 \times 10} = 4,120$$

$$412 \times 10^2 = 412 \times 100 = \underline{41,200}$$

$$412 \times 10^3 = \underline{412 \times 1,000} = 412,000$$

$$412 \times 10^4 = 412 \times 10,000 = \underline{4,120,000}$$

$$\textcircled{3} 56 \times 10^1 = \underline{56 \times 10} = 560$$

$$56 \times 10^2 = \underline{56 \times 100} = 5,600$$

$$56 \times 10^3 = \underline{56 \times 1,000} = 56,000$$

$$56 \times 10^4 = \underline{56 \times 10,000} = 560,000$$

$$\textcircled{4} 8 \times 10^1 = 8 \times 10 = \underline{80}$$

$$8 \times 10^2 = 8 \times 100 = \underline{800}$$

$$8 \times 10^3 = 8 \times 1,000 = \underline{8,000}$$

$$8 \times 10^4 = 8 \times 10,000 = \underline{80,000}$$

Draw a shape that fits the description. Mark all congruent segments and right angles.

*Drawings will vary. Check students' work.*

$\textcircled{5}$  a triangle with a right angle and exactly two congruent sides

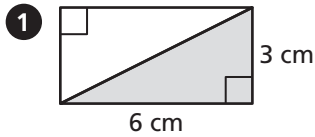
$\textcircled{6}$  a concave octagon with all sides congruent

$\textcircled{7}$  **Stretch Your Thinking** List the dimensions of two different rectangular prisms in which each has a volume of 6,600 cubic centimeters.

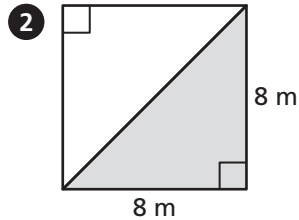
Possible answer: 66 cm  $\times$  10 cm  $\times$  10 cm;

110 cm  $\times$  12 cm  $\times$  5 cm

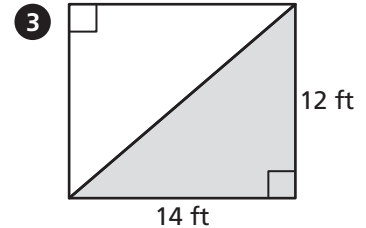
What is the area of each shaded right triangle shown?



9 sq cm

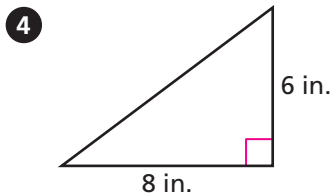


32 sq m

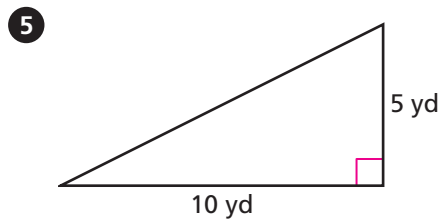


84 sq ft

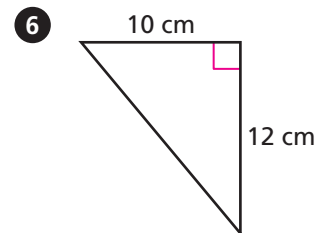
Find the area of each triangle. Mark the right angle with a small box.



24 sq in.



25 sq yd



60 sq cm

Solve.

- 7 Write a formula for finding the area of a right triangle with legs of lengths  $M$  and  $2M$ .

$$A = \frac{1}{2} \cdot M \cdot 2M$$

- 8 A rectangular tabletop measures 3 ft by 6 ft. The top is divided by a line along a diagonal. Jeremy will paint the area on one side of the line red. What is the area of the table that Jeremy will paint red?

9 sq ft

- 9 Explain why the formula  $A = \frac{1}{2} \cdot b \cdot h$  can be used to find the area of any right triangle.

The length of a leg of a right triangle is the height of the triangle, and the length of the other leg is the base length. Every right triangle is half of a rectangle, so its area is half the area of a rectangle with sides that measure  $b$  and  $h$ .

Divide.

①  $0.6 \overline{)80}$

②  $0.5 \overline{)7.5}$

③  $0.6 \overline{)0.36}$

④  $7 \overline{)0.21}$

⑤  $7 \overline{)6.3}$

⑥  $0.22 \overline{)0.88}$

⑦  $0.06 \overline{)0.54}$

⑧  $12 \overline{)7.2}$

⑨  $21 \overline{)6.3}$

⑩  $0.04 \overline{)28}$

⑪  $0.15 \overline{)3}$

⑫  $0.45 \overline{)90}$

Solve. Explain how you know your answer is reasonable.

- ⑬ A farmer is adding apple trees to his orchard. He plants the trees in rows of 14. He has 137 trees to plant. How many trees will the farmer have left over?

11 trees; 137 rounds to 140.  $140 \div 14 = 10$ ,  
which is close to 11.

- ⑭ A factory receives a shipment of 2,007 car tires. Each car has a tire on each of its four wheels plus a spare tire. How many cars can be equipped with the shipment?

401 cars; 2,007 rounds to 2,000;  $2000 \div 5 = 400$ ,  
which is close to 401.

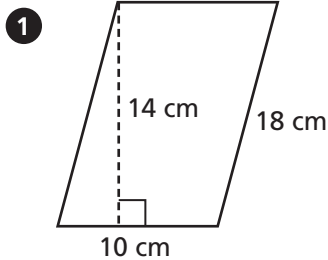
- ⑮ A mural on the wall of a building covers an area of 432 sq ft. The mural is 13.5 feet high. How wide is the mural?

32 ft; 13.5 rounds to 14 and 32 rounds to 30.  
 $14 \times 30 = 420$ , which is close to 432.

- ⑯ **Stretch Your Thinking** The two legs of a right triangle are 40 meters and 60 meters. What is the area of the right triangle?

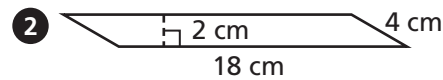
1,200 sq m

Find the area and perimeter of each parallelogram.



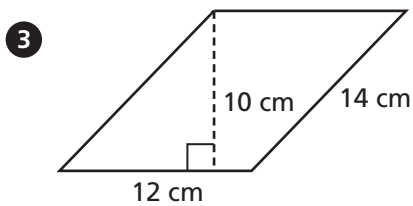
$$A = \underline{140 \text{ sq cm}}$$

$$P = \underline{56 \text{ cm}}$$



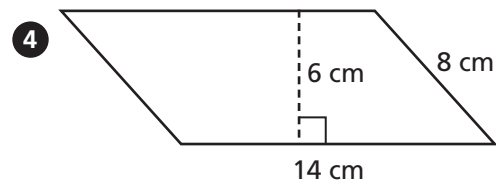
$$A = \underline{36 \text{ sq cm}}$$

$$P = \underline{44 \text{ cm}}$$



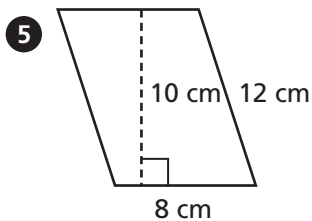
$$A = \underline{120 \text{ sq cm}}$$

$$P = \underline{52 \text{ cm}}$$



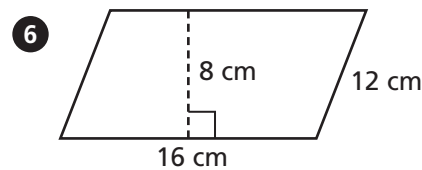
$$A = \underline{84 \text{ sq cm}}$$

$$P = \underline{44 \text{ cm}}$$



$$A = \underline{80 \text{ sq cm}}$$

$$P = \underline{40 \text{ cm}}$$



$$A = \underline{128 \text{ sq cm}}$$

$$P = \underline{56 \text{ cm}}$$

- 7 The base of a parallelogram is 22 cm and its area is 374 sq cm. What is the height of the parallelogram?

$$\underline{17 \text{ cm}}$$

- 8 Write an expression for the area of a parallelogram whose height is  $t$  and whose base has length  $2t$ .

$$A = \underline{2t \cdot t}$$

Evaluate the expression.

1  $n \div 7$  for  $n = 4.9$

0.7

2  $12 \cdot z$  for  $z = 0.04$

0.48

3  $d + \frac{1}{3}$  for  $d = 1\frac{5}{6}$

 $2\frac{1}{6}$ 

4  $2\frac{3}{7} + b$  for  $b = 1\frac{5}{21}$

 $3\frac{2}{3}$ 

5  $0.45 \div a$  for  $a = 5$

0.09

6  $0.11 \cdot f$  for  $f = 7$

0.77

7  $q - 0.08$  for  $q = 0.48$

0.4

8  $7.2 \div n$  for  $n = 1.2$

6

9  $3\frac{3}{4} - h$  for  $h = 1\frac{7}{16}$

 $2\frac{5}{16}$ 

- 10 Max bought a sandwich for \$10.50 and four apples for
- $d$
- dollars each.

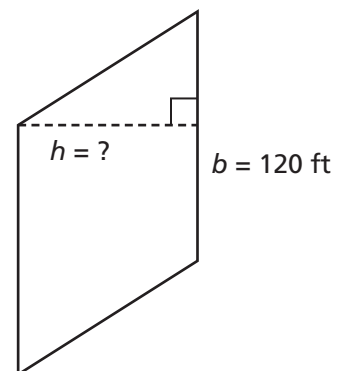
a. Write an expression for the total amount Max spent.

 $10.50 + 4d$ 

b. If each apple cost \$1.50, how much did Max spend?

\$16.50

- 11
- Stretch Your Thinking**
- The base of this parallelogram is 120 ft, and its area is 4,440 sq ft. What is the height of the parallelogram?

37 ft

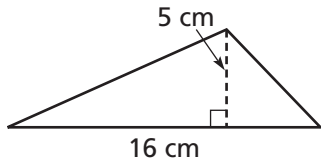
**8-20**  
**Homework**

Name \_\_\_\_\_

Date \_\_\_\_\_

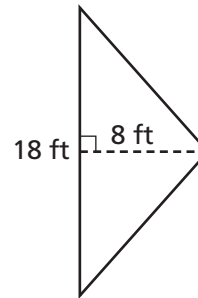
Find the area of each triangle below.

1



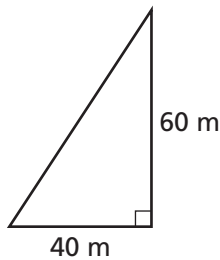
$A =$  40 sq cm

2



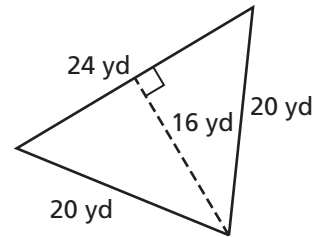
$A =$  72 sq ft

3



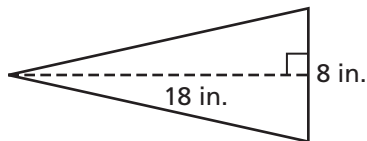
$A =$  1,200 sq m

4



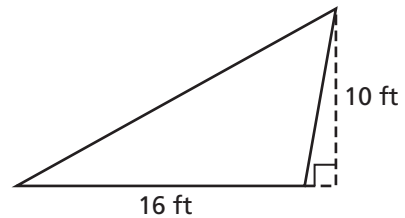
$A =$  192 sq yd

5



$A =$  72 sq in.

6



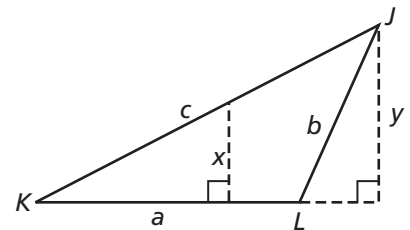
$A =$  80 sq ft

7 The base of a triangle is 16 cm and its area is 192 cm<sup>2</sup>.  
What is the height of the triangle?

24 cm

8 Write an expression for the area of triangle *JKL*.

$A = \frac{1}{2} a \cdot y$



- 1 a. Write the first six terms of a numerical pattern that begins with 22 and then adds 4.

22, 26, 30, 34, 38, 42

- b. Write an expression for the seventh term of the pattern.

$22 + (6 \cdot 4)$  or  $22 + 4 + 4 + 4 + 4 + 4 + 4$

- c. Write the seventh term.

46

- 2 a. Write the first five terms of a pattern that begins with 3 and then adds 3.

3, 6, 9, 12, 15

- b. Write the first five terms of a pattern that begins with 9 and then adds 9.

9, 18, 27, 36, 45

- c. Compare the second terms in each pattern. How does the term in the first pattern compare to the term in the second pattern?

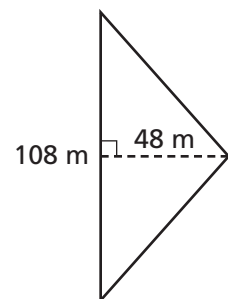
Possible answer: The second term in the first pattern is one-third of the second term in the second pattern.

- d. Compare the fourth terms in each pattern. How does the term in the first pattern compare to the term in the second pattern?

Possible answer: The fourth term in the first pattern is one-third of the fourth term in the second pattern.

- 3 **Stretch Your Thinking** Find the area of the triangle.

2,592 sq m





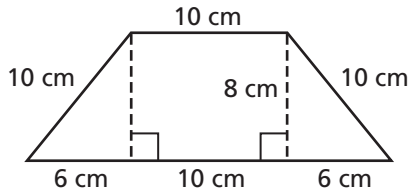
# 8-21 Homework

Name \_\_\_\_\_

Date \_\_\_\_\_

Find the perimeter and area of each figure.

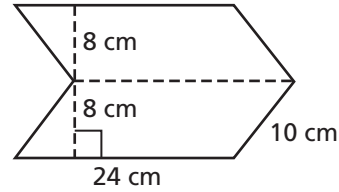
1



$P =$  52 cm

$A =$  128 sq cm

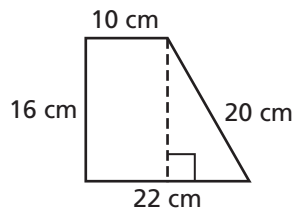
2



$P =$  88 cm

$A =$  384 sq cm

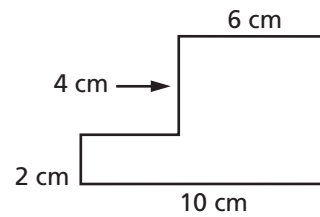
3



$P =$  68 cm

$A =$  256 sq cm

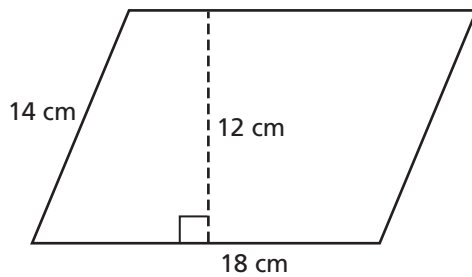
4



$P =$  32 cm

$A =$  44 sq cm

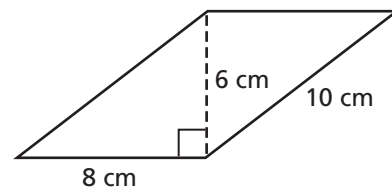
5



$P =$  64 cm

$A =$  216 sq cm

6



$P =$  36 cm

$A =$  48 sq cm

7 Describe how you would determine the area of a regular polygon, such as a regular hexagon.

Possible answer: Measure the length of one side of the polygon, and measure the distance from the middle of the side to the center. Use these as the base and height of a triangle to find the area of the triangle. Then multiply that area by the number of sides to get the area of the whole polygon.

Divide. Write the quotient as a whole number or fraction in simplest form.

$$1 \quad 7 \div 9 = \underline{\frac{7}{9}}$$

$$2 \quad 8 \div \frac{1}{4} = \underline{32}$$

$$3 \quad 24 \div 22 = \underline{\frac{24}{22} = \frac{12}{11}}$$

$$4 \quad 7 \div \frac{1}{7} = \underline{49}$$

$$5 \quad 7 \div 12 = \underline{\frac{7}{12}}$$

$$6 \quad 5 \div \frac{1}{6} = \underline{30}$$

$$7 \quad 120 \div \frac{1}{5} = \underline{600}$$

$$8 \quad 3 \div 100 = \underline{\frac{3}{100}}$$

$$9 \quad \frac{1}{5} \div 6 = \underline{\frac{1}{30}}$$

$$10 \quad \frac{2}{9} \div 8 = \underline{\frac{2}{72} = \frac{1}{36}}$$

$$11 \quad \frac{1}{8} \div 7 = \underline{\frac{1}{56}}$$

$$12 \quad \frac{1}{3} \div 12 = \underline{\frac{1}{36}}$$

- 13 Jonah's mother cuts onions into quarters. She cuts 7 onions. How many quarters does she have?

28

- 14 After a party,  $\frac{1}{5}$  of the cake is left over. The last four friends at the party split the cake equally to take home. How much of the whole cake does each person get?

$\frac{1}{20}$

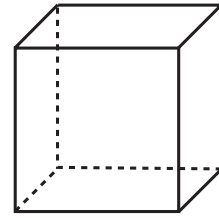
- 15 **Stretch Your Thinking** Write an expression you can use to find the perimeter of an equilateral triangle whose sides have length  $d$ .

$3d$  or  $3 \cdot d$  or  $d + d + d$

- 1 How many faces does a cube have?

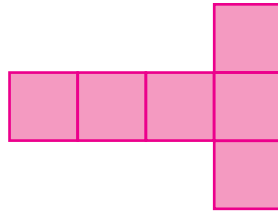
6

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- 2 Draw a net that can be folded to make a cube.

Possible net:

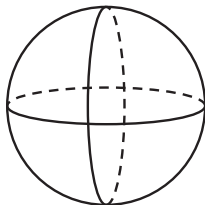


- 3 Each edge of a cube measures 4 in. What is the surface area of the cube?

96 sq in.

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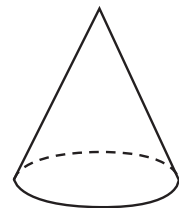
- 4 Name a real world object that has the same shape as a sphere, a cylinder, and a cone.



Sphere



Cylinder



Cone

Possible answers shown:

Sphere: globe

Cylinder: can of beans

Cone: party hat

- 5 What is the shape of the base of a cone? What other three-dimensional figure has this shape as a base?

circle; cylinder

---

- 6 Why are cubes, spheres, cylinders, and cones called three-dimensional figures?

Possible answer: They do not sit flat on a plane as a triangle, square, or circle does. Instead of having only two dimensions, like length and width, they have a third dimension giving them thickness.

Complete.

1  $48 \text{ in.} = \underline{4} \text{ ft}$

2  $24 \text{ ft} = \underline{8} \text{ yd}$

3  $72 \text{ in.} = \underline{2} \text{ yd}$

4  $\underline{108} \text{ in.} = 3 \text{ yd}$

5  $\underline{15} \text{ ft} = 5 \text{ yd}$

6  $\underline{96} \text{ in.} = 8 \text{ ft}$

7  $3\frac{1}{4} \text{ ft} = \underline{39} \text{ in.}$

8  $2\frac{1}{3} \text{ yd} = \underline{7} \text{ ft}$

9  $1\frac{2}{3} \text{ yd} = \underline{60} \text{ in.}$

10  $\underline{\frac{1}{2}} \text{ yd} = 18 \text{ in.}$

11  $\underline{4\frac{3}{4}} \text{ ft} = 57 \text{ in.}$

12  $\underline{3\frac{1}{3}} \text{ yd} = 10 \text{ ft}$

Write an equation to solve each problem.

- 13 A company charges \$3.25 per square foot to install 150 square feet of tile. They also charge \$30 per hour for labor. It takes  $3\frac{1}{2}$  hours to install the tile. What is the total cost ( $c$ ) for installing the tile?

$$\underline{3.25(150) + 30(3.5); c = \$592.50}$$

- 14 While shopping at a music store, Maya bought 5 used CDs for \$4.50 each and one new CD for  $2\frac{1}{2}$  times as much as one used CD. How much ( $p$ ) did Maya pay for her purchase?

$$\underline{p = 5(4.50) + 2\frac{1}{2}(4.50); p = \$33.75}$$

- 15 A savings account balance was \$125.20 before a withdrawal of \$50, a deposit of \$85.25, and a withdrawal of \$60. What was the balance ( $b$ ) after the withdrawals and deposit?

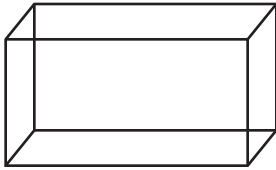
$$\underline{b = 125.20 - 50 + 85.25 - 60; b = \$100.45}$$

- 16 **Stretch Your Thinking** One cube is stacked directly on top of another cube of the same size. Each edge of a cube measures 2 cm. What is the total surface area of the new figure?

$$\underline{40 \text{ sq cm}}$$

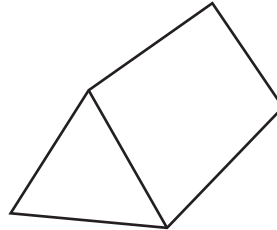
Name the shape of the base and use it to name the prism.

1



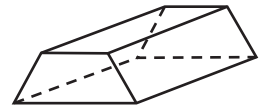
rectangle  
rectangular prism

2



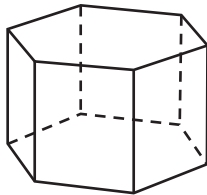
triangle  
triangular prism

3



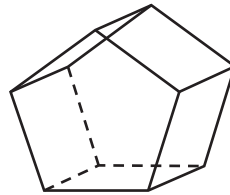
trapezoid  
trapezoidal prism

4



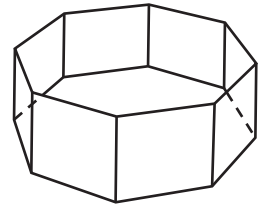
hexagon  
hexagonal prism

5



pentagon  
pentagonal prism

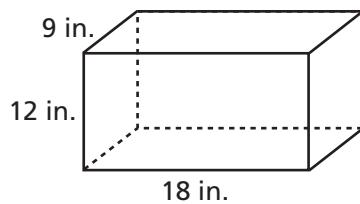
6



octagon  
octagonal prism

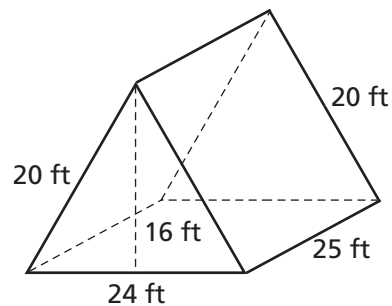
Find the surface area of each prism.

7



972 sq in.

8



1,984 sq ft

9 Describe how to find the surface area of any prism.

Possible answer: Draw a net of the prism, and then  
find the area of each face on the net. Add all of the  
areas to get the total surface area.

Find the unknown dimension or volume for each rectangular prism.

①  $V = 180$  cu ft  
 $l = \underline{9}$  ft  
 $w = 4$  ft  
 $h = 5$  ft

②  $V = \underline{360}$  cu m  
 $l = 9$  m  
 $w = 8$  m  
 $h = 5$  m

③  $V = 180$  cu in.  
 $l = 4$  in.  
 $w = 6$  in.  
 $h = \underline{7.5}$  in.

For each question, write whether you would measure for length, area, or volume.

- ④ the amount of helium needed to fill a balloon volume  
 ⑤ the height of a building length  
 ⑥ the distance from a car to the entrance of the store length  
 ⑦ the amount of water in a pitcher volume  
 ⑧ the amount of tarp needed to cover the field area

Solve.

- ⑨ Elicia built a rectangular prism with cubes. The base of her prism has 15 centimeter cubes. If her prism was built with 135 centimeter cubes, how many layers does her prism have?

9 layers

- ⑩ A bathroom is 24 square feet. The length and width of a small bedroom is double the length and width of the bathroom. What is the area of the bedroom?

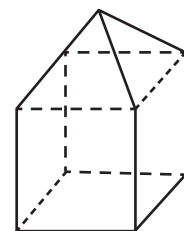
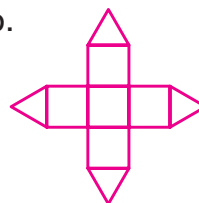
96 sq ft

- ⑪ One box in the shape of a cube has a volume of 27 cubic inches. Another box is twice as long, twice as wide, and one and a half times as high. What is the volume of the other box?

162 cu in.

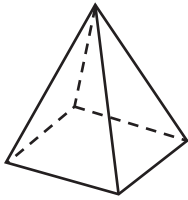
- ⑫ **Stretch Your Thinking** Draw a net for the figure shown, which is made up of a cube with a square pyramid on top.

**Nets will vary. Possible net:**



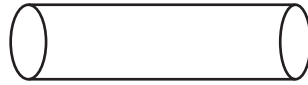
Name each three-dimensional figure.

1



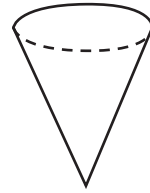
rectangular pyramid

2



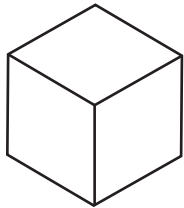
cylinder

3



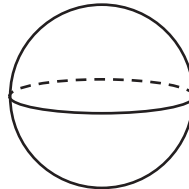
cone

4



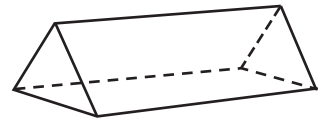
cube

5



sphere

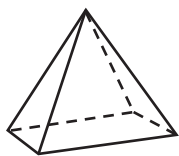
6



triangular prism

Write the number of faces, edges, and vertices for each three-dimensional figure.

7

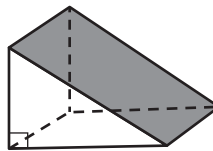


faces: 5

edges: 8

vertices: 5

8

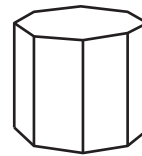


faces: 5

edges: 9

vertices: 6

9



faces: 10

edges: 24

vertices: 16

10 Which of the three-dimensional figures shown on this page have no vertices?

sphere, cylinder, cone

Complete.

1  $4 \text{ pt} = \underline{2} \text{ qt}$

2  $4 \text{ c} = \underline{2} \text{ pt}$

3  $4 \text{ c} = \underline{1} \text{ qt}$

4  $\underline{7} \text{ qt} = 28 \text{ c}$

5  $\underline{10} \text{ pt} = 5 \text{ qt}$

6  $\underline{6} \text{ gal} = 24 \text{ qt}$

7  $4\frac{1}{2} \text{ qt} = \underline{9} \text{ pt}$

8  $1\frac{1}{4} \text{ gal} = \underline{20} \text{ c}$

9  $3\frac{3}{4} \text{ qt} = \underline{15} \text{ c}$

10  $2 \text{ lb} = \underline{32} \text{ oz}$

11  $1 \text{ T} = \underline{2,000} \text{ lb}$

12  $48 \text{ oz} = \underline{3} \text{ lb}$

13  $\underline{3,000} \text{ lb} = 1\frac{1}{2} \text{ T}$

14  $\underline{56} \text{ oz} = 3\frac{1}{2} \text{ lb}$

15  $\underline{96} \text{ oz} = 6 \text{ lb}$

16  $60 \text{ oz} = \underline{3\frac{3}{4}} \text{ lb}$

17  $1,500 \text{ lb} = \underline{\frac{3}{4}} \text{ T}$

18  $40 \text{ oz} = \underline{2\frac{1}{2}} \text{ lb}$

Solve.

- 19 Raju buys 2 bottles of juice that each hold 1.25 qt and 3 bottles of juice that each hold 1 pt. How many cups of juice does he buy?

16 c

- 20 Each bag of pita chips weighs 20 oz. Carl buys 5 bags. How many pounds of chips does he buy?

 $6\frac{1}{4} \text{ lb}$ 

- 21 **Stretch Your Thinking** How many faces, edges, and vertices does a prism with a 12-sided base have?

14 faces, 36 edges, 24 vertices