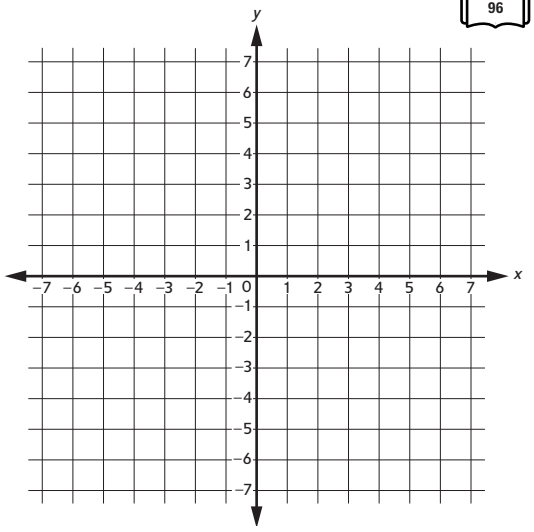
Polygon Side Lengths

Home Link 5-1

NAME DATE TIME

(1) Find any missing coordinates. Plot and label the points on the coordinate grid. Draw the polygon by connecting the points.

SRB 96



a. Rectangle *ABCD*

A: (1, 1) *B*: (−1, 1)

The length of $\overline{BC}$ is represented by

|1| + |−4| = _____.

C: (_____, _____)

D: (_____, _____)

b. Right triangle *XYZ*

X: (−5, 1) *Z*: (−3, 6)

The length of $\overline{ZY}$ is represented by |6| − |1| = _____.

The length of $\overline{XY}$ is represented by |−5| − |−3| = _____.

Y: (_____, _____)

(2) Use rectangle *ABCD* and triangle *XYZ* to fill in the following tables. The first row has been done as an example.

Horizontal Sides	Segment Endpoints	Length Expression	Length
$\overline{AB}$	(1, 1) and (−1, 1)	|−1| + |1|	2

Vertical Sides	Segment Endpoints	Length Expression	Length

Practice Divide. Write any remainders using R.

(3) $6\overline{)7{,}329}$ (4) $73\overline{)3{,}285}$ (5) $38\overline{)8{,}398}$ (6) $128\overline{)2{,}310}$

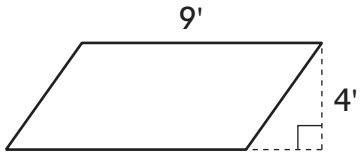
Finding the Areas of Parallelograms

Home Link 5-2

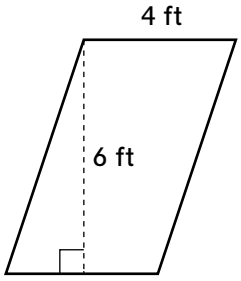
NAME DATE TIME

Find the area of each parallelogram. Show your work.

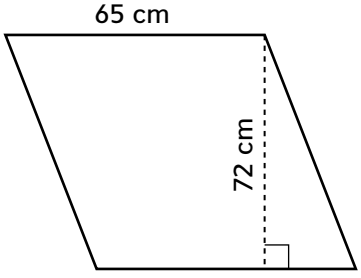
SRB 254

① 

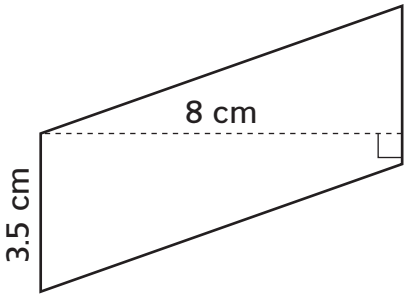
Area: _____

② 

Area: _____

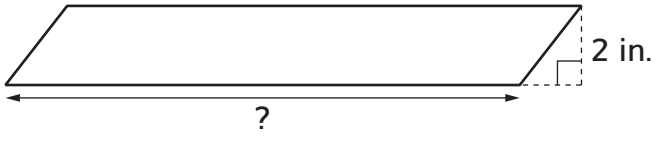
③ 

Area: _____

④ 

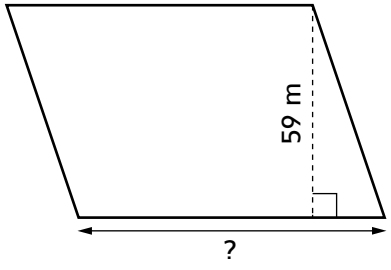
Area: _____

Try This The area of each parallelogram is given. Find the length of each base.

⑤ 

Area: 26 square inches

Base: _____

⑥ 

Area: 5,015 square meters

Base: _____

Practice Evaluate.

⑦ 20% of 45 _____ ⑧ 45% of 60 _____ ⑨ 83% of 110 _____

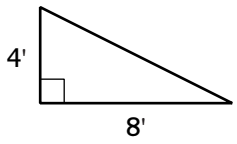
Triangle Area

Home Link 5-3

NAME DATE TIME

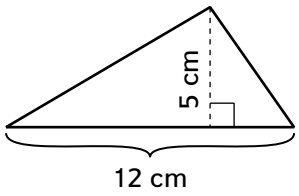
Find the area of each triangle. Remember: $A = \frac{1}{2}bh$.

SRB 255-256

① 

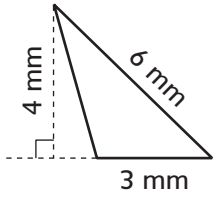
Number model: _____

Area = _____

② 

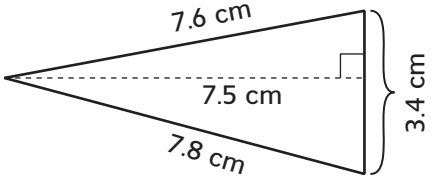
Number model: _____

Area = _____

③ 

Number model: _____

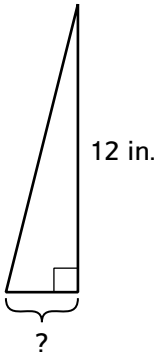
Area = _____

④ 

Number model: _____

Area = _____

⑤ Find the length of the base.

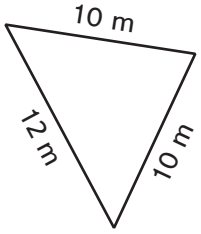


Area = 18 in.^{2}

Base = _____

Try This

⑥ Draw a height for the triangle. Find the length of the height.



Area = 48 m^2

Height = _____

Practice

Compute.

⑦ $|-7|$ = ____ ⑧ $|4|$ = ____ ⑨ ____ = $|-3|$

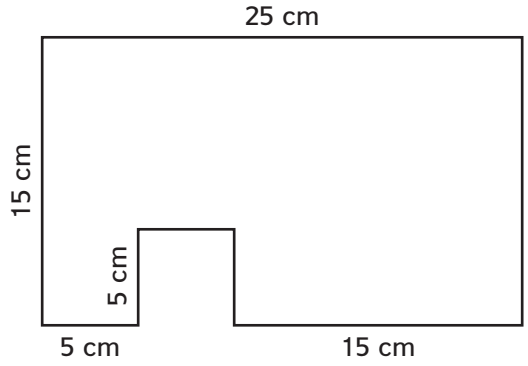
Areas of Complex Shapes

Home Link 5-4

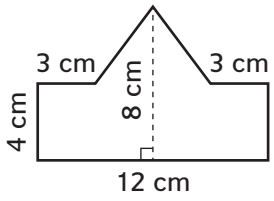
NAME DATE TIME

In Problems 1–4, decompose the shapes into polygons for which area formulas can be used. Label the areas. Find the total area for each shape. Use appropriate units.

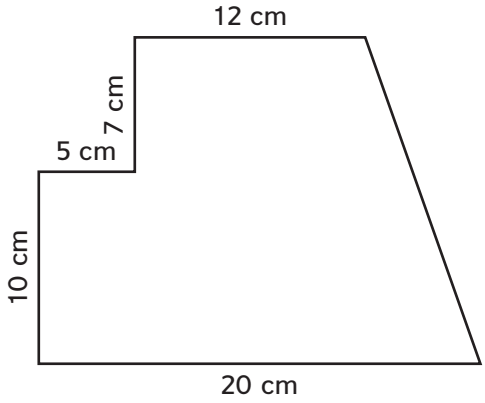
SRB 257

① 

Area: _____

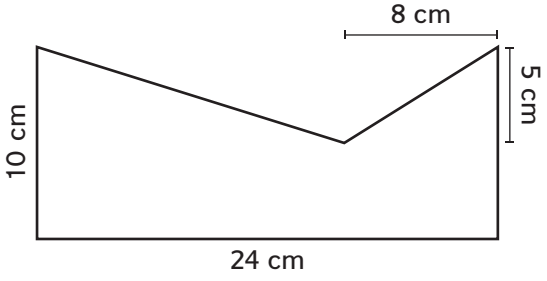
② 

Area: _____

③ 

Area: _____

Try This

④ 

Area: _____

Practice Calculate.

⑤ 12 − 8.25 = _____

⑥ _____ = 9.03 + 0.7 + 18

⑦ 125.29 − 16.7 = _____

⑧ _____ = 0.01 + 0.99

Real-World Nets

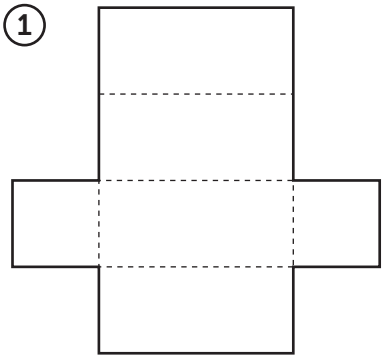
Home Link 5-5

NAME DATE TIME

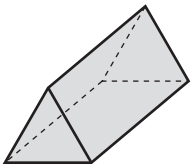
SRB 263-264

Circle the solid that can be made from each net.

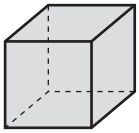
1



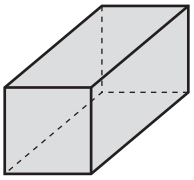
a.



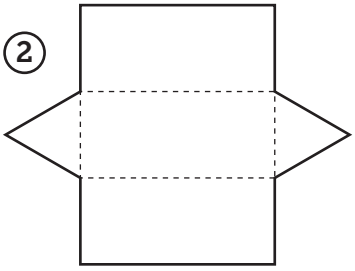
b.



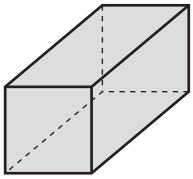
c.



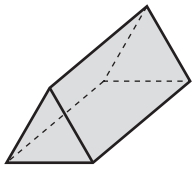
2



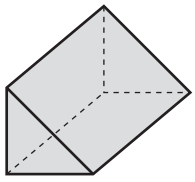
a.



b.



c.



3 Use the net and its corresponding geometric solid in Problem 2.

a. Which polygons make up the faces of your solid?
How many are there of each kind? _____

b. Which faces are parallel? _____

c. Which faces are congruent? _____

d. How many edges are there? How many vertices? _____

Practice Multiply.

4 $5.2 * 3 =$ _____ 5 $1.04 * 2 =$ _____ 6 _____ $= 0.14 * 3$

Surface Area Using Nets

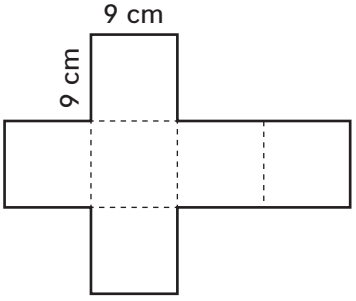
Home Link 5-6

NAME DATE TIME

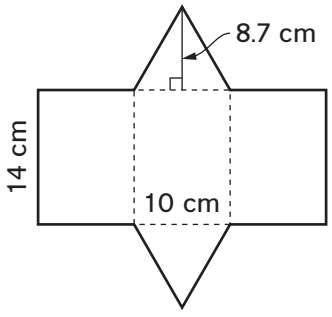
Silly Socks is trying to choose a type of plastic box for their socks.
The nets for three different box designs are given below.

SRB 263-264

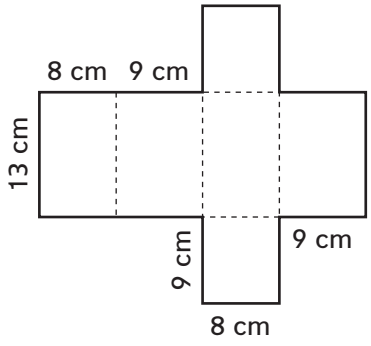
Design 1



Design 2



Design 3



(1) Without calculating, predict which design will require the least amount of plastic to produce. _____

(2) Find the surface area for each plastic-box design.
Write a number sentence to show how you found the surface area.
Remember to use the correct order of operations.

Box Design	Surface Area	Number Sentence
Design 1		
Design 2		
Design 3		

(3) Explain how to find the surface area for any rectangular or triangular prism.

_____

_____

Practice Divide. Find your answer to the nearest hundredth.

(4) $8\overline{)7{,}034}$ (5) $18\overline{)6{,}723}$ (6) $54\overline{)6{,}624}$

Surface Area

SRB 263-264

Home Link 5-7

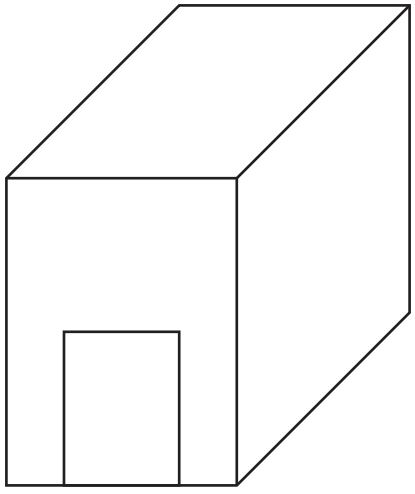
NAME DATE TIME

(1) Sam is painting the outside of a doghouse dark green (except for the bottom, which is on the ground).

The doghouse measures 3 feet wide by 4.5 feet long. It is 4 feet high.

The roof is flat, so the doghouse looks like a rectangular prism.

The entrance to the dog house is 1.5 feet wide by 2 feet high.



a. Label the doghouse diagram with the measurements.

b. On the grid below, draw a net for a prism that could represent Sam's doghouse.

Scale: ☐ = 1 square foot

c. How many square feet is he painting? _____

d. One pint of paint covers about 44 ft^2. How many pints does he need? _____

Practice

Evaluate.

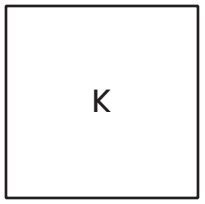
(2) 4^3 _____ (3) 1.5^2 _____ (4) 1^{50} _____ (5) $(\frac{2}{3})^2$ _____

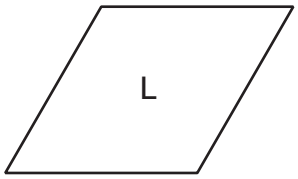
Arguing about Areas

Home Link 5-8

NAME DATE TIME

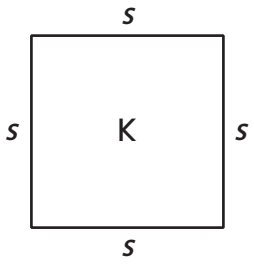
Jayson was comparing the areas of the polygons at the right.



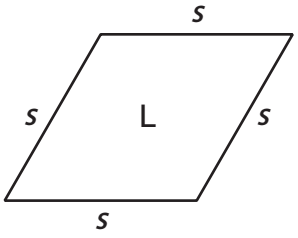


SRB 257

Here is Jayson's reasoning:
I think that Polygons K and L have the same area. I lined up the sides of each polygon and they were equal, so I labeled the sides with the same variables. So the area of Polygon K is equal to the area of Polygon L.



Area of Polygon K:
$s * s = s^2$



Area of Polygon L:
$s * s = s^2$

(1) Explain the flaw in Jayson's reasoning.

Trace Polygon K above, and cut out your tracing. Use it to help you solve Problems 2–3.

(2) Draw two different polygons that have the same area as Polygon K.

(3) Choose one of your polygons from Problem 2. Describe how you used Polygon K to draw a polygon that has the same area.

For Lesson 5-9, bring a rectangular prism, such as an empty tissue box, to class.

Practice Find the whole.

(4) 10% is 7, so 100% is _____.

(5) 25% is 90, so 100% is _____.

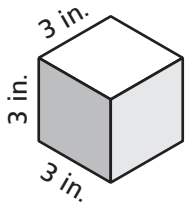
Volume of Rectangular Prisms

Home Link 5-9

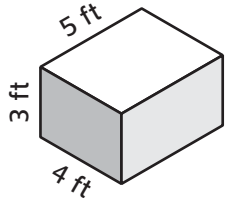
NAME DATE TIME

Find the volume for each prism.

SRB 260

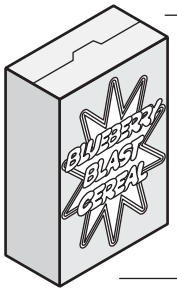
① 

Volume _____

② 

Volume _____

③ The Blueberry Blast cereal box is a rectangular prism that is 12 inches × 8 inches × 4 inches.



_____

_____

_____

a. Label the diagram with the dimensions.

b. What is its volume? _____

④ Greta's gift shop has three sizes of gift boxes. They are all shaped like rectangular prisms. The dimensions are shown below.

Small: 10 cm × 10 cm × 10 cm **Large:** 40 cm × 30 cm × 15 cm

Medium: The area of the base is 1,000 cm^2 and the height is 8 cm.

Find the volume of each gift box.

Small: _____ **Large:** _____

Medium: _____

Practice Evaluate.

⑤ $\frac{2}{3} + \frac{5}{6} =$ _____

⑥ $4\frac{3}{4} + \frac{7}{8} =$ _____

⑦ $\frac{4}{5} - \frac{3}{4} =$ _____

⑧ $10 - \frac{5}{12} =$ _____

Calculating Luggage Volume

Home Link 5-10

NAME DATE TIME

SRB 260, 262

You may want to consider how much volume your luggage holds when you travel. If you know how to calculate the area of a rectangular prism, you can also find the approximate volume of a suitcase. Below are the measurements of some common suitcase sizes.

(1) **a.** Find the volume of each suitcase.

b. Find the approximate volume of the interiors. Round to the nearest 0.01 $in.^3$.

Suitcase 1

Exterior: 17" × 15" × 8"

a. Volume: _____

Interior: 16" × 13.75" × 6.5"

b. Volume: _____

Suitcase 2

Exterior: 21" × 14" × 7"

a. Volume: _____

Interior: 19.5" × 13" × 5.75"

b. Volume: _____

Suitcase 3

Exterior: 24" × 16" × 9.75"

a. Volume: _____

Interior: 22.5" × 14.75" × 8.25"

b. Volume: _____

Suitcase 4

Exterior: 28" × 19" × 9"

a. Volume: _____

Interior: 26" × 17.5" × 7.5"

b. Volume: _____

(2) Describe how you can estimate the interior volume of a suitcase if you know the exterior measurements.

_____

_____

_____

Practice Evaluate.

(3) $\frac{2}{3} \div \frac{1}{6} =$ _____

(4) $\frac{5}{12} \div \frac{7}{12} =$ _____

(5) _____ $= 2\frac{2}{3} \div \frac{1}{2}$

(6) $8 \div 2\frac{2}{3} =$ _____

Volume of Letters

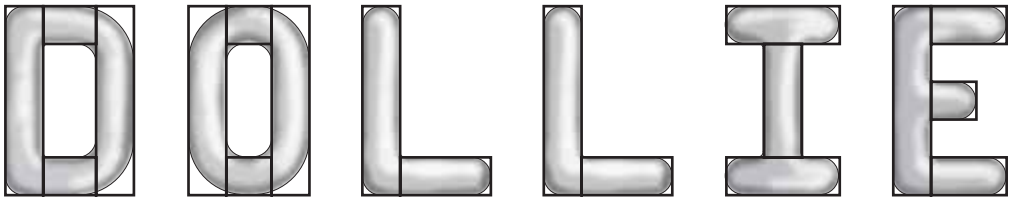
Home Link 5-11

NAME DATE TIME

The Santiago Balloon Emporium sells custom balloons shaped like letters of the alphabet. Clarissa orders balloons that spell DOLLIE for her friend's birthday. She wants the balloons to float, so she plans to fill them with helium. To estimate how much it will cost, Clarissa needs to calculate the approximate volume of helium she will need to fill the balloons.

SRB 260

The volume of each balloon can be estimated based on rectangular prisms.



Measure the dimensions in millimeters for each rectangular part of the letters.

(1) The scale is 1 mm = 1 inch. Each letter has a depth of 5 inches. Estimate the volume of each letter.

D: _____ O: _____ L: _____

I: _____ E: _____

(2) What is the approximate total volume of helium (in cubic inches) needed to fill the letters? _____

(3) **a.** Helium comes in tanks that hold either 8.9 ft^3, which cost \$19.99 each, or 14.9 ft^3, which cost \$28.99 each. What is the least amount Clarissa can spend to fill her letters with helium? _____
Hint: There are 1,728 $in.^3$ in 1 ft^3.

b. Explain how you found your answer to Part a.

_____

_____

Practice Divide.

(4) $4\overline{)25.6}$ (5) $0.8\overline{)324}$ (6) $0.16\overline{)48}$ (7) $9.5\overline{)41.8}$

Could a Giant Breathe?

Home Link 5-12

NAME DATE TIME

Think about how area and volume change in relation to changes in linear measurements.

SRB 373-378

1. How many centimeters are in 1 meter? _____

2. How many square centimeters are in 1 square meter? _____

3. How many cubic centimeters are in 1 cubic meter? _____

One cubic centimeter of water has a mass of about 1 gram.

4. One cubic meter of water has a mass of:

   _____ grams _____ kilograms

5. One kilogram has a weight equivalent to about 2.2 pounds. One cubic meter of water weighs about how many pounds? _____

Oxygen enters your body through the **surface area** of your lungs.

6. A giant who is 10 times as tall as you would have lungs that provide _____ as much oxygen as your lungs.

7. If the surface area of the giant's lungs were 100 times greater than yours, and if the giant required oxygen in the same proportions as a human, how do you know the giant would not have enough oxygen? Explain.

_____

_____

Try This

8. Your lungs fit in a relatively small space inside your rib cage. Research how your lungs increase surface area to be able to supply all the oxygen you need.

_____

_____

Practice For Problems 9–10, record the opposite of the number.

9. -7 _____ 10. 0 _____ 11. The opposite of the opposite of -3 _____

Simplifying Expressions

Home Link 6-6

NAME DATE TIME

SRB 206

(1) Simplify each expression by combining the like terms.

a. $42x + 12x$ _____ **b.** $17w - 8w$ _____

c. $25.42e - 23.3e$ _____ **d.** $88h + 30.5h$ _____

(2) Simplify. Check that your expressions are equivalent.

a. $12m + 24m$

b. $90a - 30a$

c. $14b + 15b + 8$

d. $58d + 25 - 22d$

e. $3(14 + 15f) + 79$

f. $20(18 + 5t) - 47 + 28t$

Practice

Insert =, <, or >.

(3) -5 ____ -10 (4) 0.23 ____ 0.009 (5) -11 ____ 1 (6) 0.092 ____ 0.0920

Equivalent Expressions Puzzle Pieces

Lesson 6-7

NAME DATE TIME