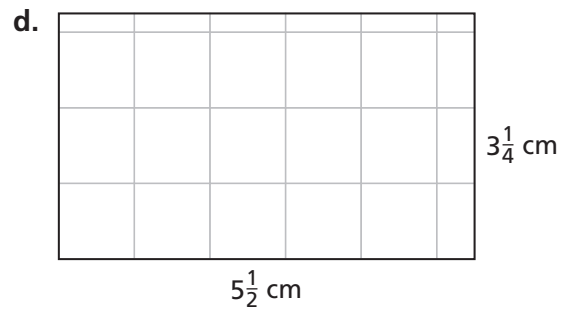
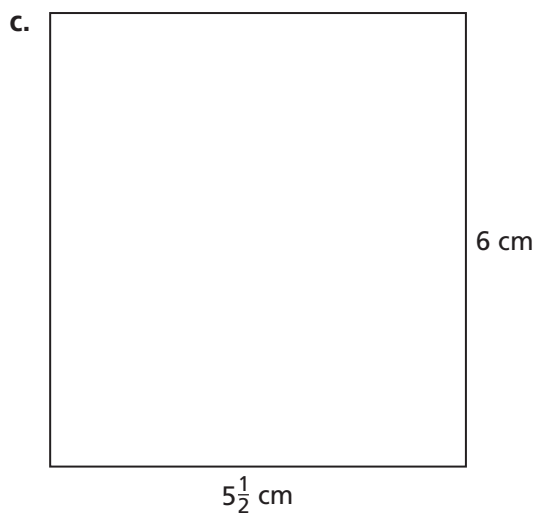
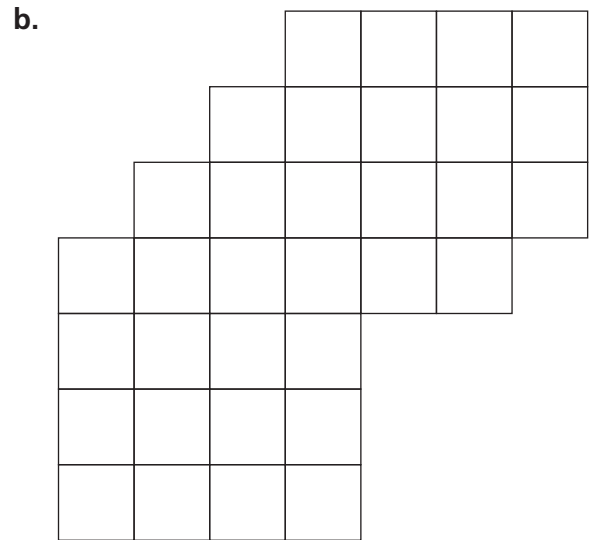
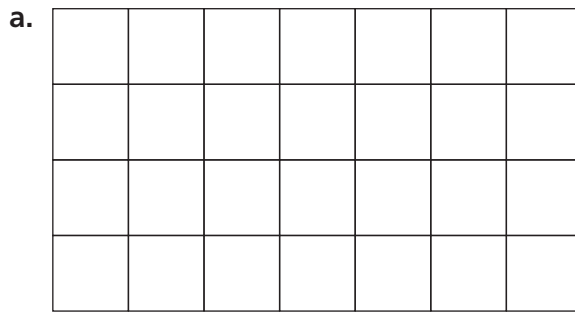


# Additional Practice

## Investigation 1

### Covering and Surrounding

1. Find the area and the perimeter of each of the four shapes below.



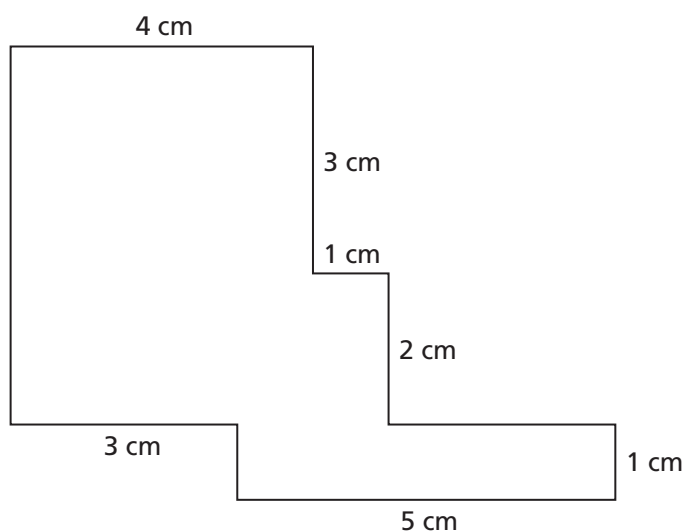
**Additional Practice** *(continued)***Investigation 1****Covering and Surrounding**

2. Susan is helping her father measure the living room floor because they want to buy new carpeting. The floor is in the shape of a rectangle with a width of 10 feet and a length of 14 feet.
- Draw a sketch that shows the shape of the floor and label the length and width.
  - If the carpeting costs \$1.75 per square foot, how much will it cost to buy the exact amount of carpeting needed to carpet the living room?
  - Baseboard needs to be installed along the base of the walls to hold the carpeting in place. Baseboard costs \$2.35 per foot. There is one 6-foot wide entry into the living room that does not need baseboard. Find the exact amount of baseboard needed and the exact cost.

**Additional Practice** *(continued)***Investigation 1****Covering and Surrounding**

3. Ellen drew a rectangle. She says the area of her rectangle is 7 square units and the perimeter is 16 units. Could Ellen be correct about the perimeter and area of her rectangle? Explain.

4. Use the diagram below to answer the following questions. (All angles in the diagram are right angles.)



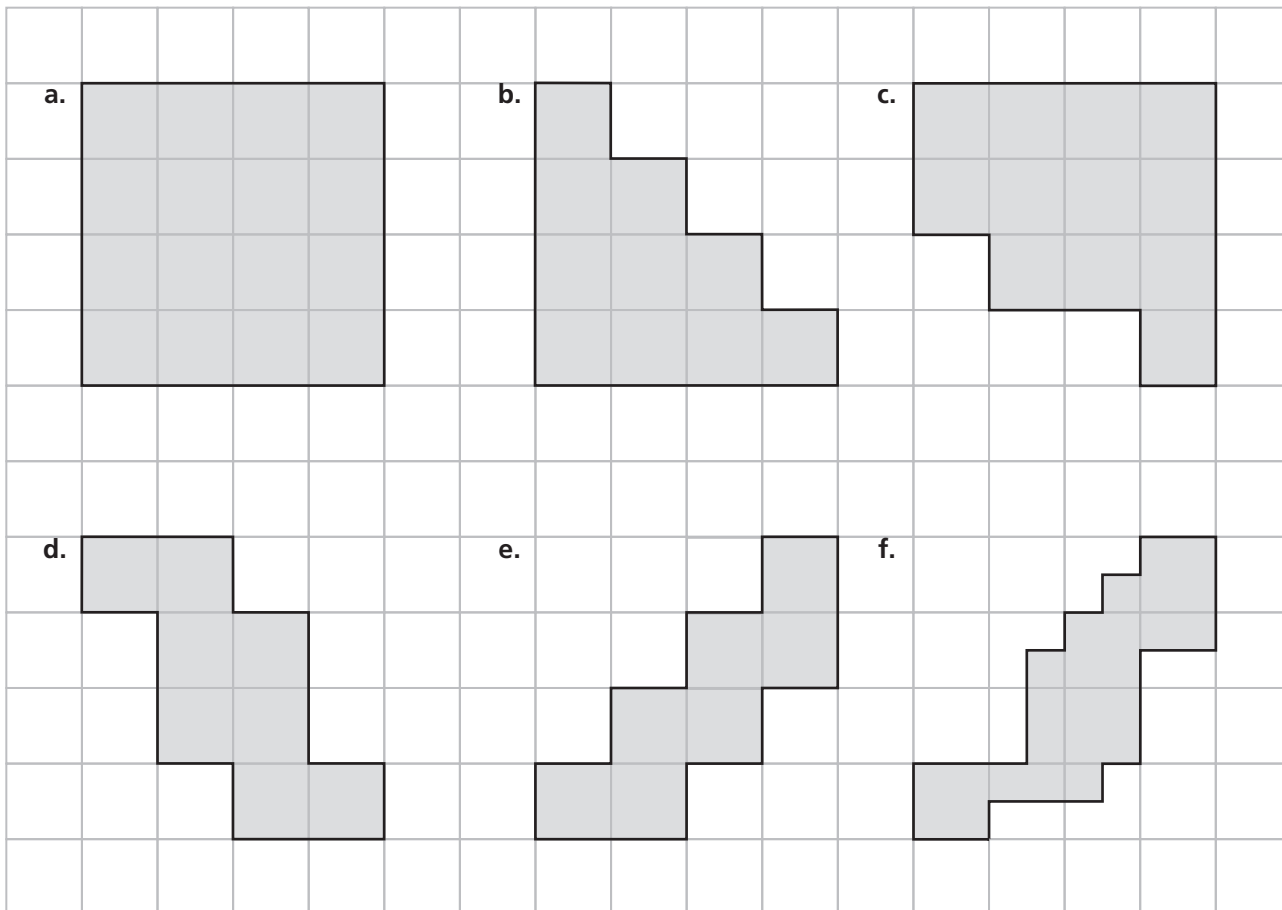
- a. What is the perimeter of the figure?
- b. What is the area of the figure?
- c. Explain how you found your answers for parts (a) and (b).

# Additional Practice *(continued)*

## Investigation 1

### Covering and Surrounding

5. Find the area and perimeter of each figure below.



6. Find the area and perimeter of each of the following rectangles.

	Rectangle	Area	Perimeter
a.			
b.			
c.	Length: 25 cm; width: 8 cm		
d.	Length: $6\frac{3}{4}$ cm; width: $4\frac{7}{8}$ cm		

**Additional Practice** *(continued)***Investigation 1****Covering and Surrounding**

7. a. Give the dimensions of the rectangle with an area of 100 square units and whole-number side lengths that has
- the largest perimeter
  - the smallest perimeter
- b. Explain how you found your answers in part (a).
8. Jim has designed a rectangular garden with an area of 20 square yards and a perimeter of 81 yards.
- Find the dimensions of all of the possible rectangles with whole-number side lengths that have an area of 20 units. Record the length, width, area, and perimeter in a table.
  - Is it possible that Jim's garden has whole-number of yards as side lengths? Explain.
  - Jim used fractional dimensions to make his garden. What are its dimensions?

**Additional Practice** *(continued)***Investigation 1****Covering and Surrounding**

9. Claire and Chad want to design a rectangular pen for their new puppy. They want the pen to have an area of 48 square feet. Fencing costs \$0.85 per foot.
- What are the dimensions and the cost of the least expensive pen Claire and Chad could build, assuming the side lengths are whole numbers? Explain.
  - What are the dimensions and the cost of the most expensive pen Claire and Chad could build, assuming the side lengths are whole numbers? Explain.
  - Give the dimensions and the cost of a rectangular pen with whole-number side lengths and a cost between the least and most expensive pens you found in parts (a) and (b).
  - Of the three pens you found, which one would you suggest that Claire and Chad build? Explain your choice.

**Additional Practice** *(continued)***Investigation 1****Covering and Surrounding**

10. Is each perimeter possible for a rectangle with an area of 42 square units and whole-number side lengths? If so, give the dimensions.

- a. 28 units      b. 46 units      c. 34 units      d. 41 units

11. Find the dimensions of all the possible rectangles with whole-number side lengths that have a perimeter of 10 units. Record the length, width, area, and perimeter in a table. Explain how you made sure you did not miss any rectangles.

12. Is each area possible for a rectangle with a perimeter of 28 units and whole-number side lengths? If so, give the dimensions.

- a. 24 sq. units      b. 40 sq. units      c. 42 sq. units      d. 45 sq. units

## Additional Practice *(continued)*

### Investigation 1

#### Covering and Surrounding

13. Tracy has 40 feet of material to make the perimeter of a rectangular sandbox for her little brother.
- What rectangle with whole-number side lengths would give the sandbox with the greatest area?
  - What rectangle with whole-number side lengths would give the sandbox with the least area?
  - Give the dimensions of a rectangle with whole-number side lengths that has an area between the least and greatest areas you found in parts (a) and (b).
  - Of the three rectangles you found, which one would you recommend that Tracy make? Explain your reasoning.



**Additional Practice** *(continued)***Investigation 1****Covering and Surrounding**

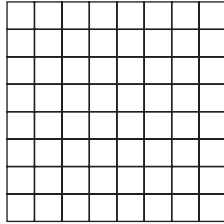
14. Travis designs a rectangle with an area of 59 square units. The side lengths are whole numbers.
- What are the length and width of the rectangle? Explain your reasoning.
  - What is the perimeter of the rectangle?
  - What is the area of the largest rectangle that Travis could make with the same perimeter?
15. Helen designs a rectangle with an area of 225 square units. Her rectangle is the largest rectangle (that is, the rectangle with largest area) with whole-number side lengths that can be made from the perimeter of the rectangle.
- What are the length and width of the rectangle?
  - What is the perimeter of the rectangle?

# Additional Practice: Digital Assessments

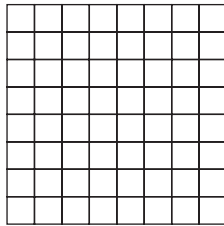
## Investigation 1

### Covering and Surrounding

16. Shade part of the grid to form a figure that has an area of 33 square units.



17. Shade part of the grid to form a figure that has a perimeter of 24 units.



18. You want to plant a rectangular garden with an area of 64 square feet.

a. What are the possible dimensions of the garden? *Select all that apply.*

- 1 foot  $\times$  64 feet
- 2 feet  $\times$  48 feet
- 2 feet  $\times$  32 feet
- 4 feet  $\times$  16 feet
- 6 feet  $\times$  12 feet
- 8 feet  $\times$  8 feet

b. A fence will be built around the garden. Circle the dimensions for the garden that will require the least amount of fencing to enclose.

1	feet #	8	feet
2		12	
4		16	
6		32	
8		48	
		64	

19. Four rectangles have the dimensions given on the tiles.

- 

a. Order the dimensions of the rectangles from shortest perimeter to longest perimeter.

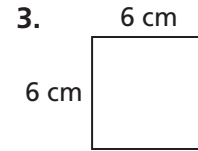
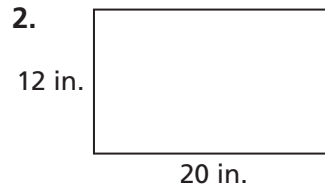
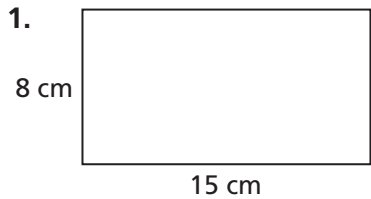
, , ,

b. Order the dimensions of the rectangles from smallest area to largest area.

, , ,

**Skill: Area and Perimeter of Rectangles****Investigation 1****Covering and Surrounding**

Find the perimeter and area of each rectangle.



4.  $\ell = 5$  in.,  $w = 13$  in.

5.  $\ell = 18$  m,  $w = 12$  m

6.  $\ell = 3$  ft,  $w = 8$  ft

7. rectangle:  $\ell = 16$  mm,  $w = 12$  mm      8. rectangle:  $\ell = 65$  mi,  $w = 48$  mi

9. The length of a rectangle is 8 centimeters. The width is 6 centimeters.

a. What is the area?

b. What is the perimeter?

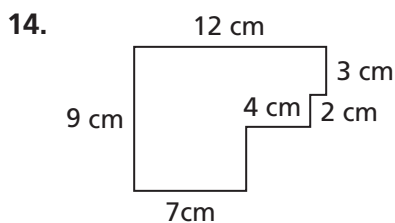
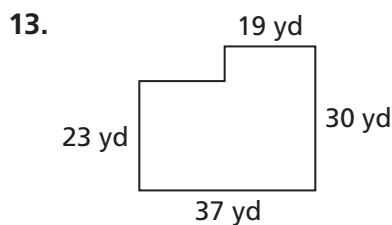
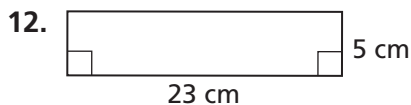
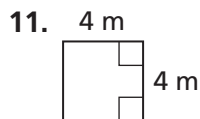
10. The area of a rectangle is 45 square inches. One dimension is 5 inches. What is the perimeter?

# Skill: Area and Perimeter of Rectangles *(continued)*

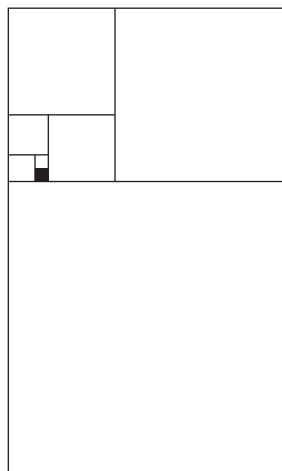
## Investigation 1

### Covering and Surrounding

Find the area of each rectangle or composition of rectangles.



15. The figure at the right contains only squares. Each side of the shaded square is 1 unit. What is the length, width, and area of the figure?



16. The perimeter of a rectangle is 38 centimeters. The length is  $7\frac{1}{2}$  centimeters. What is the width?

**Skill: Changing Area, Changing Perimeter****Investigation 1****Covering and Surrounding**

**Solve.**

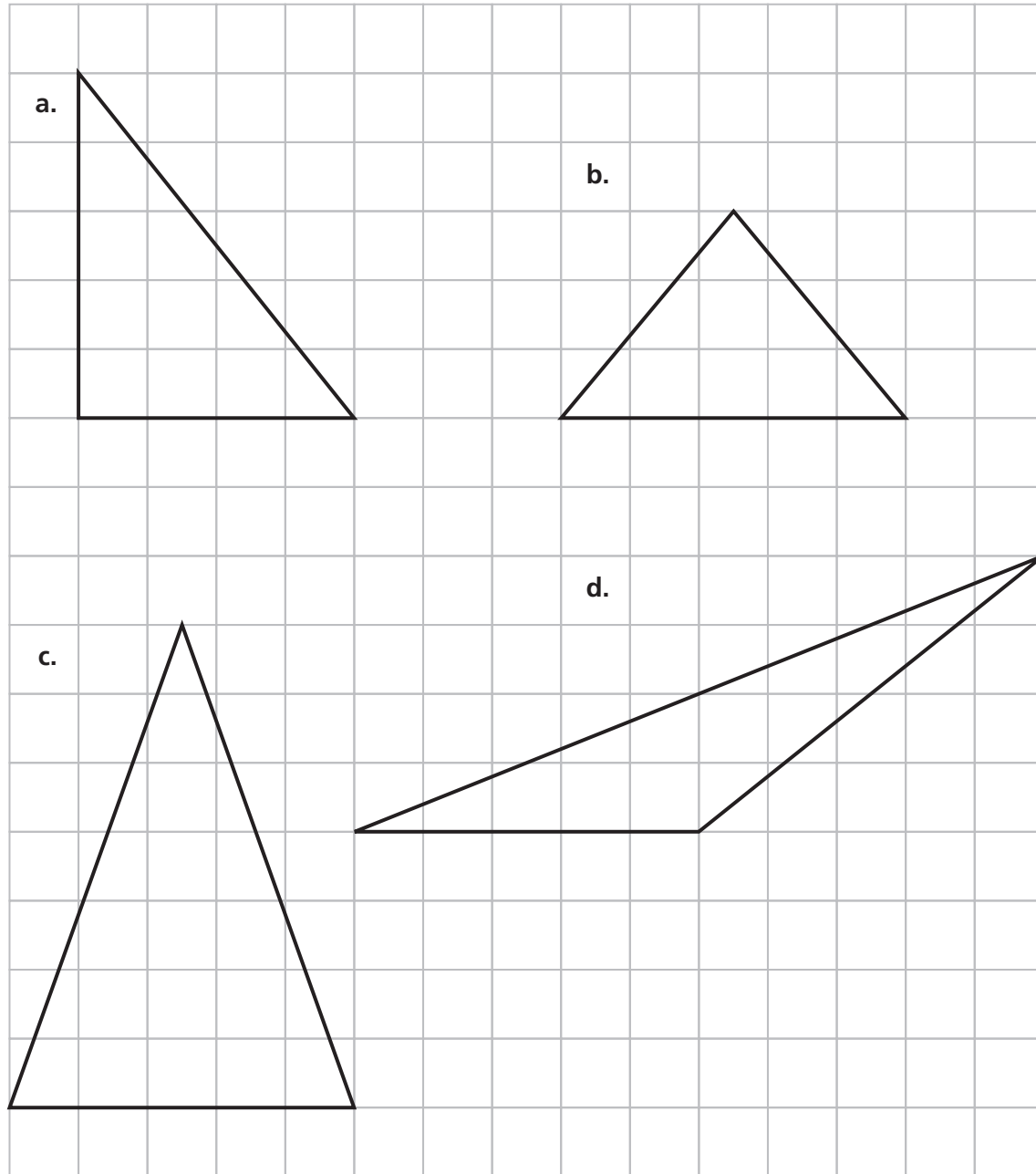
1. The perimeter of a rectangle is 72 meters. The width of the rectangle is 16 meters. What is the area of the rectangle?
  
  
  
  
  
  
  
  
  
  
2. You have 36 feet of fencing. What are the areas of the different rectangles you could enclose with the fencing? Consider only whole-number dimensions.
  
  
  
  
  
  
  
  
  
  
3. Corinda has 400 feet of fencing to make a play area. She wants the fenced area to be rectangular. What dimensions should she use in order to enclose the maximum possible area?

# Additional Practice

## Investigation 2

### Covering and Surrounding

1. Find the area and perimeter of each shape below.

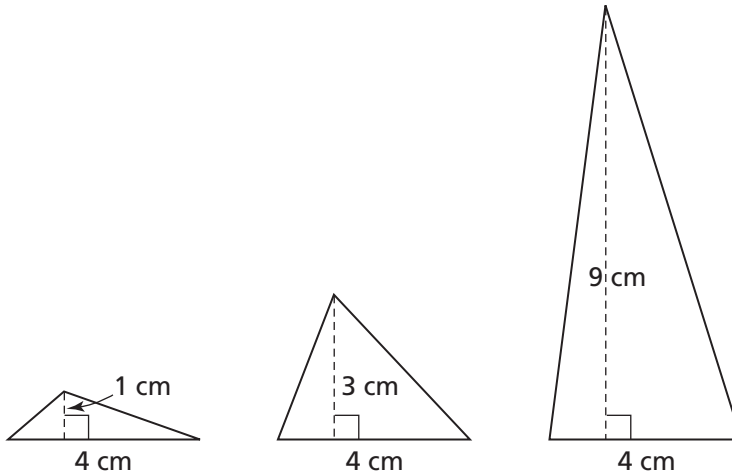


## Additional Practice *(continued)*

### Investigation 2

#### Covering and Surrounding

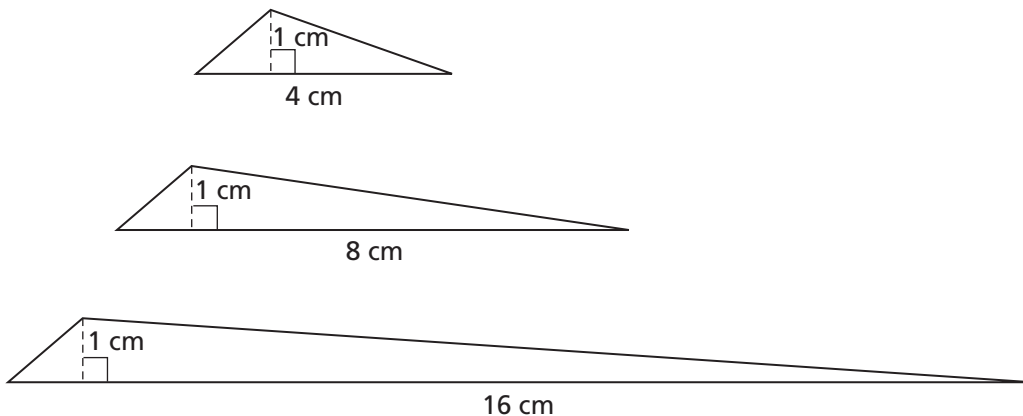
2. a. Find the area of each triangle below.



b. How are the heights of these triangles related to each other?

c. How are the areas of these triangles related to each other?

3. a. Find the area of each triangle below.

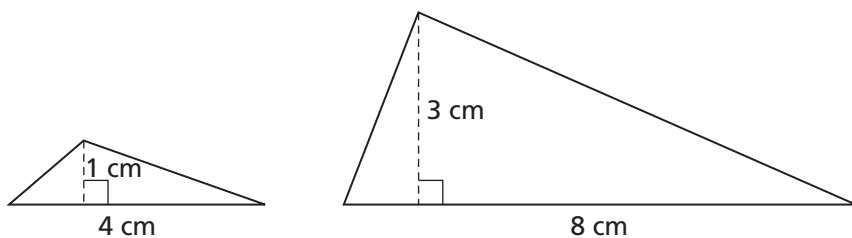


b. How are the bases of these triangles related to each other?

c. How are the areas of these triangles related to each other?

**Additional Practice** *(continued)***Investigation 2****Covering and Surrounding**

4. a. Find the area of each triangle below.



- b. Based on the patterns in Exercises 2 and 3, sketch the third triangle.

c. How are the heights of these triangles related to each other?

d. How are the bases of these triangles related to each other?

e. How are the areas of these triangles related to each other?



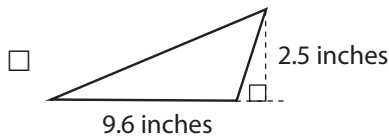
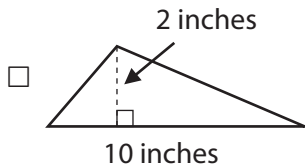
# Additional Practice: Digital Assessments

## Investigation 2

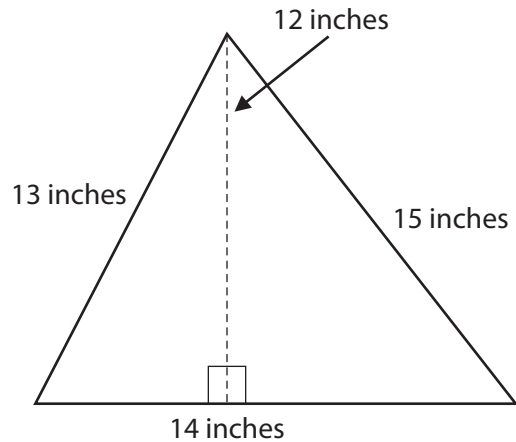
### Covering and Surrounding

5. Select the triangles that have an area of 12 square inches. *Select all that apply.*

- A right triangle with a base of 6 inches and a height of 4 inches.
- A triangle with a base of 4 inches and a height of 3 inches.
- A triangle with a base of 12 inches and a height of 1 inch.



6. Circle the number that makes each statement true.

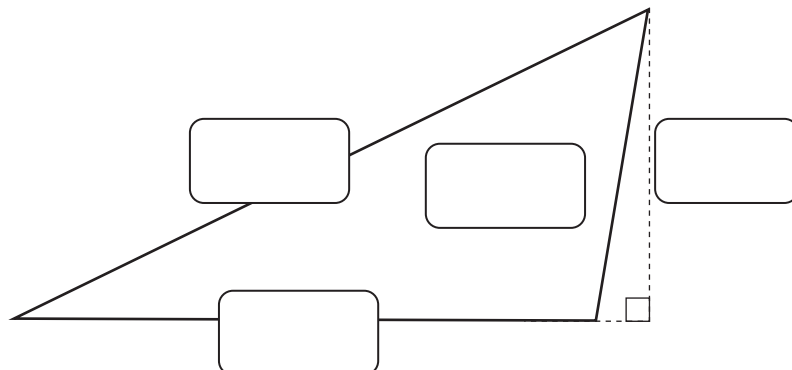


a. The area is  $\left[ \begin{array}{c} 30 \\ 42 \\ 84 \\ 105 \\ 168 \end{array} \right]$  square inches.

b. The perimeter is  $\left[ \begin{array}{c} 39 \\ 42 \\ 54 \\ 58 \\ 84 \end{array} \right]$  inches.

7. The area of the triangle is 56 square meters and the perimeter is 44 meters. Use the values in the box to fill in the lengths of the sides of the triangle and its height.

- |          |           |           |
|----------|-----------|-----------|
| 7 meters | 11 meters | 14 meters |
| 8 meters | 12 meters | 18 meters |

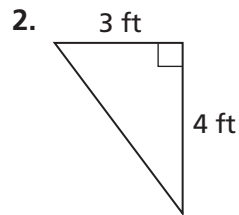
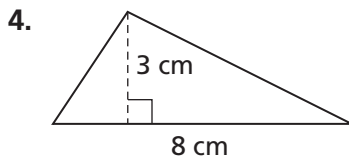


# Skill: Area of Triangles

## Investigation 2

### Covering and Surrounding

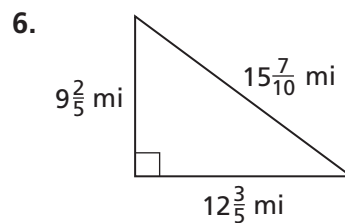
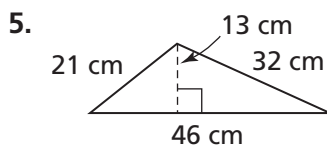
Find the area of each triangle.



Tell whether each statement is *true* or *false*.

- Two triangles that have the same base always have the same area.
- Any obtuse triangle has a greater area than any acute triangle.

Find the area and perimeter of each triangle.

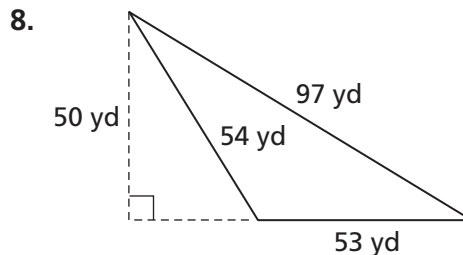
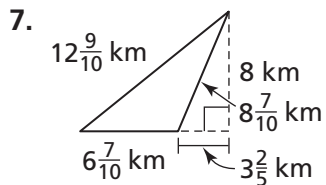


**Skill: Area of Triangles** *(continued)*

**Investigation 2**

**Covering and Surrounding**

Find the area of each triangle.



**Solve.**

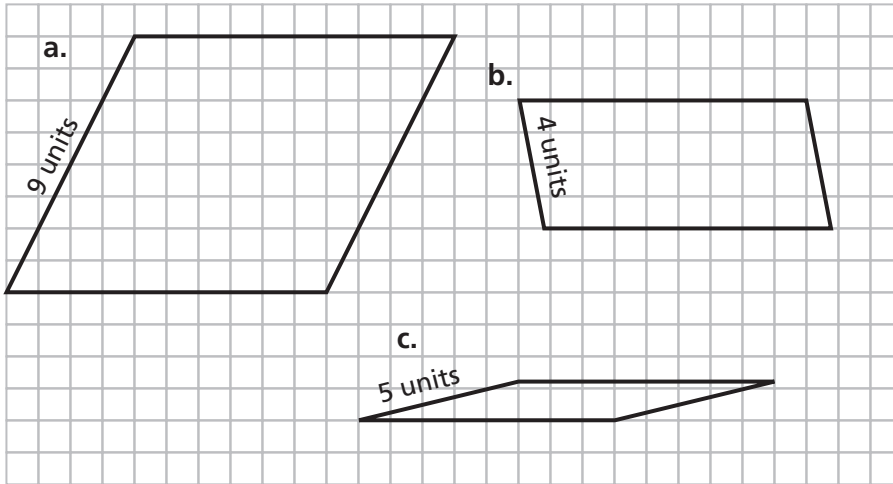
9. The area of a triangle is 6 square units. Both the height and the length of the base are whole numbers. What are the possible lengths and heights?

# Additional Practice

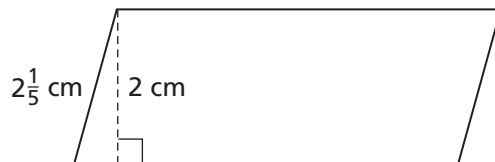
## Investigation 3

### Covering and Surrounding

1. For each of the following, find the perimeter and area of the parallelogram. Labeled lengths are approximations.



2. Use the diagram below to answer the following questions.



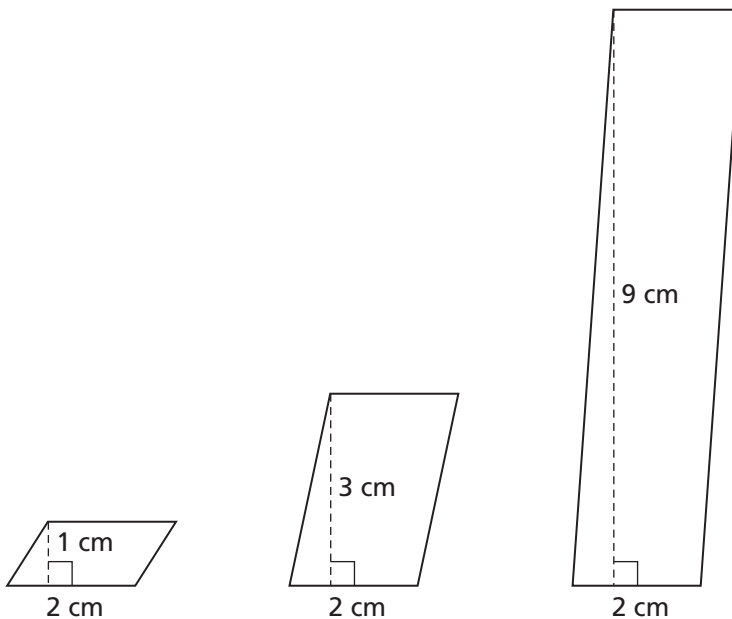
- a. If the perimeter of the parallelogram is  $14\frac{2}{5}$  centimeters, what is the length of the base?
- b. What is the area of the parallelogram?

## Additional Practice *(continued)*

### Investigation 3

#### Covering and Surrounding

3. The area of a parallelogram is 24 square centimeters, and the base of the parallelogram is 6 centimeters.
- What is the height of the parallelogram?
  - If the perimeter of the parallelogram is 22 centimeters, what is the length of the other side of the parallelogram (that is, the side that isn't the base)?
4. a. Find the area of each parallelogram below.



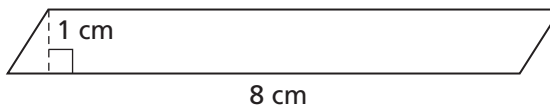
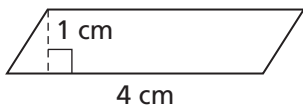
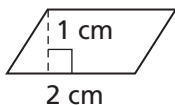
- How are the heights of these parallelograms related to each other?
- How are the areas of these parallelograms related to each other?

## Additional Practice *(continued)*

### Investigation 3

#### Covering and Surrounding

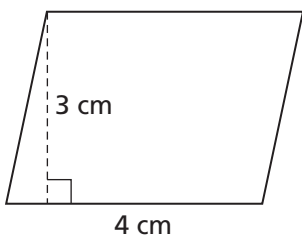
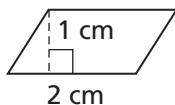
5. a. Find the area of each parallelogram below.



b. How are the bases of these parallelograms related to each other?

c. How are the areas of these parallelograms related to each other?

6. a. Find the area of each parallelogram below.



b. Based on the patterns in Exercises 4 and 5, sketch the third parallelogram beside the first two.

c. How are the heights of these parallelograms related to each other?

d. How are the bases of these parallelograms related to each other?

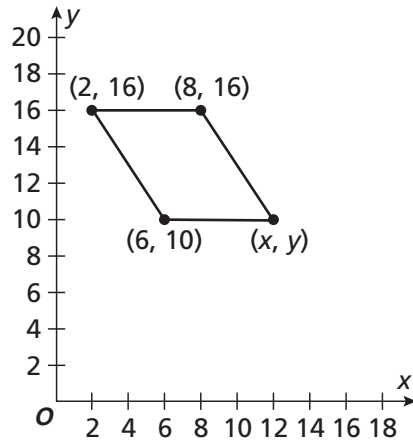
e. How are the areas of these parallelograms related to each other?

## Additional Practice *(continued)*

### Investigation 3

#### Covering and Surrounding

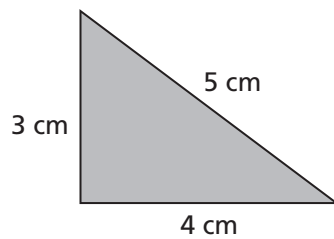
7. The parallelogram shown below is missing coordinates for one of its vertices.



a. Find the missing coordinates.

b. Find the area of the parallelogram.

8. a. Find the area and perimeter of the triangle below.



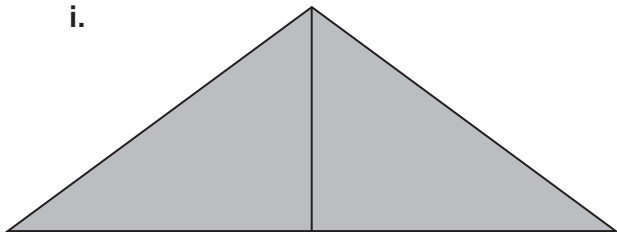
## Additional Practice *(continued)*

### Investigation 3

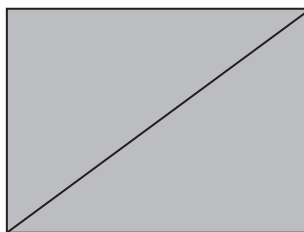
#### Covering and Surrounding

b. Each figure below is made from copies of the triangle from part (a). Find the area and perimeter of each figure.

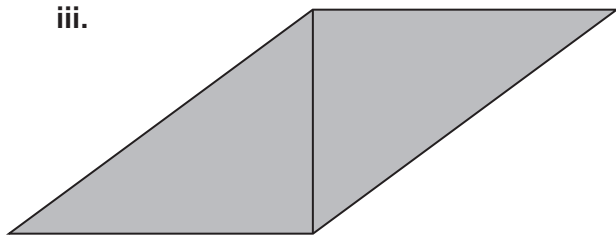
i.



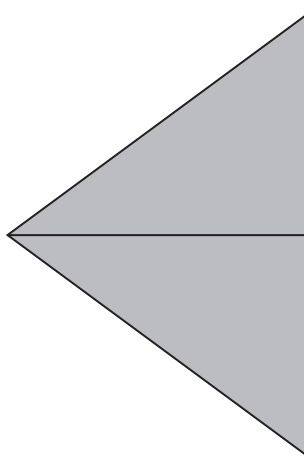
ii.



iii.



iv.





# Additional Practice: Digital Assessments

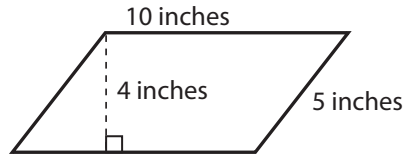
## Investigation 3

### Covering and Surrounding

9. The coordinates of two vertices of a parallelogram are (3, 2) and (7, 2). The parallelogram has an area of 12 square units. Which of the following could be the coordinates of the third and fourth vertices? *Select all that apply.*

- (1, 5) and (4, 5)
- (2, 5) and (6, 5)
- (3, 6) and (7, 6)
- (5, 5) and (9, 5)
- (0, 6) and (4, 6)

10. Circle the number that makes each statement true.



a. The area is 

20
25
30
40
45
50

 square inches.

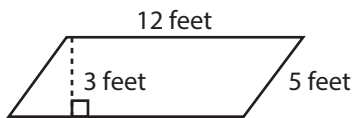
b. The perimeter is 

15
19
30
38
40
50

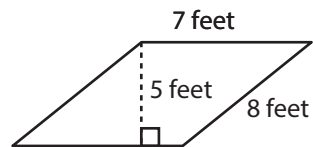
 inches.

11. Write the correct set of measurements in each box.

Area = 35 square feet  
Perimeter = 30 feet



Area = 36 square feet  
Perimeter = 34 feet



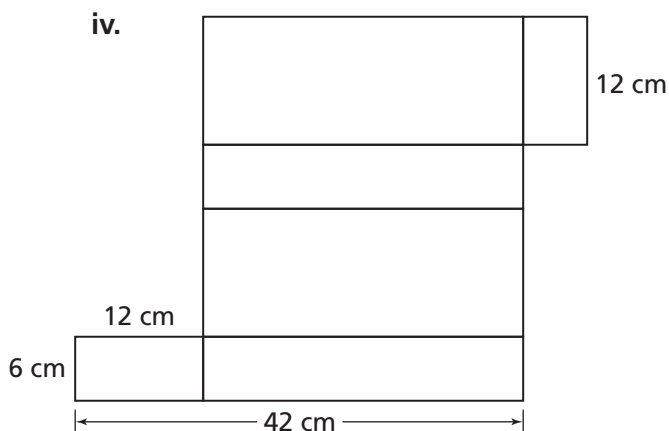
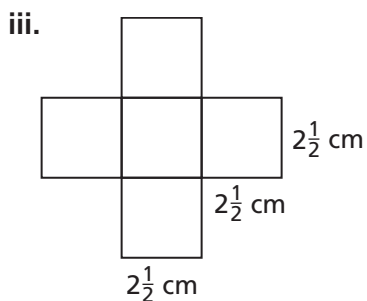
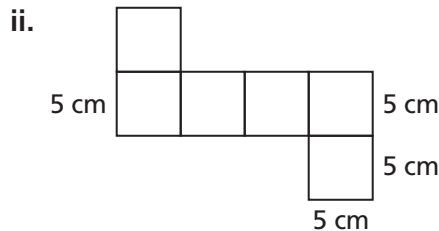
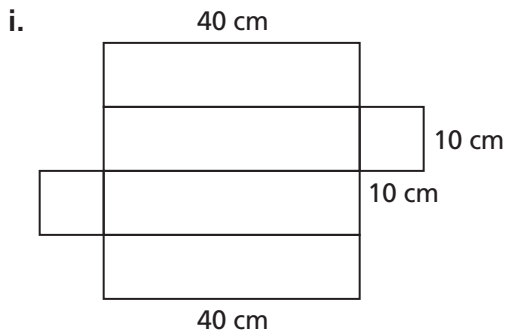
# Additional Practice

## Investigation 4

### Covering and Surrounding

1. The four nets below will fold into rectangular boxes. Net *iii* folds into an open box. The other nets fold into closed boxes. Answer the following questions for each net.

- What are the dimensions of the box that can be made from the net?
- What is the surface area of the box?
- What total number of unit cubes would be needed to fill the box?



**Additional Practice** *(continued)***Investigation 4****Covering and Surrounding**

2. a. Gina has a sheet of cardboard that measures 9 feet by 6 feet. She uses scissors and tape to make the entire sheet of cardboard into a closed box that is a perfect cube. What is the surface area of the box?
- b. What is the length of each edge of the box? Explain your reasoning.
- c. How many unit cubes would it take to fill the box?
3. a. Bill has a sheet of cardboard with an area of 10 square feet. He makes the entire sheet of cardboard into a closed rectangular box. The four sides of the box have the same area, and the two ends have the same area. The area of each of the four equal sides is twice the area of each end. What is the area of each face of Bill's box?
- b. What are the dimensions of Bill's box?
- c. How many unit cubes would it take to fill the box?

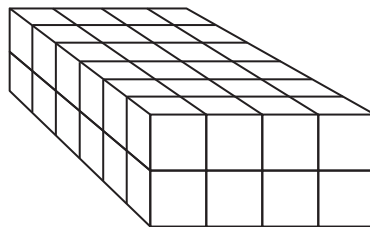
**Additional Practice** *(continued)*

**Investigation 4**

**Covering and Surrounding**

4. The bottom of a closed rectangular box has an area of 50 square centimeters. If the box is 8 centimeters high, give at least three possibilities for the dimensions of the box.

5. The rectangular prism below is made from centimeter cubes.



- What are the dimensions of the prism?
- What is the surface area of the prism?
- What is the volume of the prism? That is, how many cubes are in the prism?
- Give the dimensions of a different rectangular prism that can be made from the same number of cubes. What is the surface area of the prism?

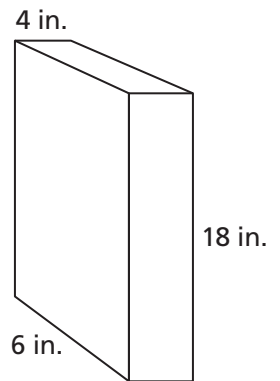
**Additional Practice** *(continued)*

**Investigation 4**

**Covering and Surrounding**

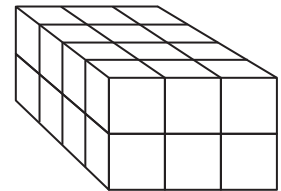
6. Use the diagram at the right to answer the following questions.

- a. What is the total surface area of the box, including the bottom and the top?



- b. How many inch cubes would it take to fill the box? Explain your reasoning.

7. a. Each small cube in the rectangular prism at the right has edges of length 2 centimeters. What are the dimensions of the prism in centimeters?



- b. What is the surface area of the prism in square centimeters?

- c. How many 1-centimeter cubes would it take to make a prism with the same dimensions as this prism? Explain your reasoning.

## Additional Practice *(continued)*

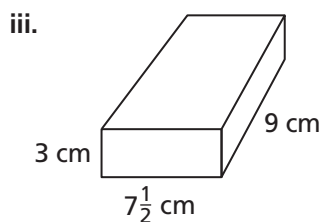
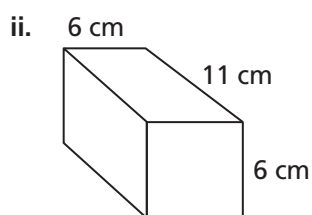
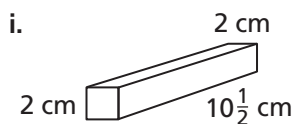
### Investigation 4

#### Covering and Surrounding

8. Answer parts (a) and (b) for each closed box below.

a. What is the surface area of each box?

b. What is the volume of each box?

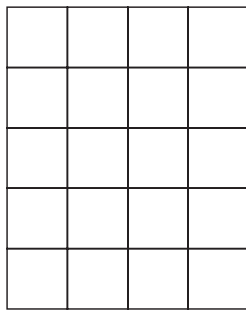
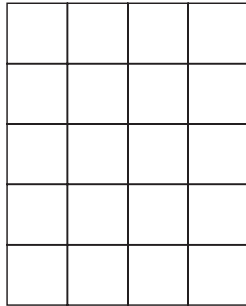


# Additional Practice: Digital Assessments

## Investigation 4

### Covering and Surrounding

9. Shade each grid to create different nets of a cube.



10. The height of a box is 3 feet. The volume of the box is 48 cubic feet. Which of the following could be the length and width?

*Select all that apply.*

- 4 ft × 6 ft
- 2.5 ft × 6.4 ft
- 3.2 ft × 5 ft
- 2 ft × 8 ft
- 2.5 ft × 4 ft

11. Circle the numbers that make each statement true.

a. The volume of a rectangular prism is  $60 \text{ cm}^3$ .

The dimensions could be  $\begin{bmatrix} 1\frac{1}{2} \\ 2 \\ 3 \\ 3\frac{1}{2} \end{bmatrix}$  cm by  $\begin{bmatrix} 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{bmatrix}$  cm by  $7\frac{1}{2}$  cm.

b. The surface area of a rectangular prism is  $62 \text{ cm}^2$ .

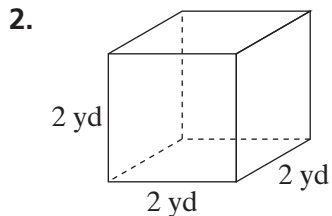
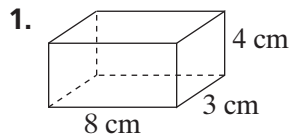
The dimensions could be 2 cm by  $\begin{bmatrix} 1 \\ 2 \\ 3 \\ 4 \\ 5 \end{bmatrix}$  cm by 5 cm.

# Skill: Surface Area of a Box

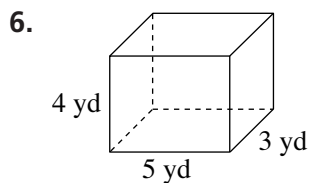
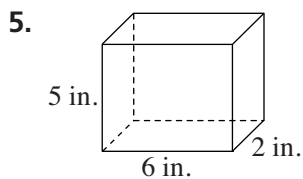
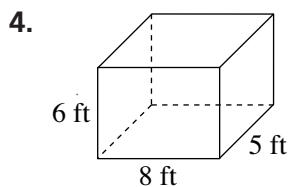
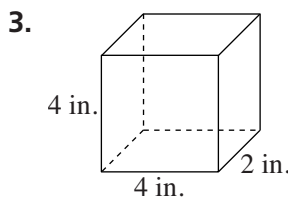
## Investigation 4

### Covering and Surrounding

Draw a net for each prism.



Find the surface area of each figure.





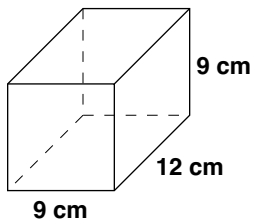
**Skill: Surface Area of a Box** *(continued)*

**Investigation 4**

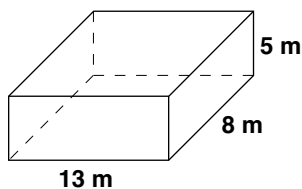
**Covering and Surrounding**

Find the surface area of each prism.

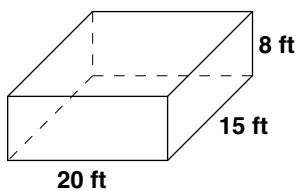
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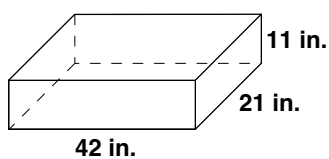
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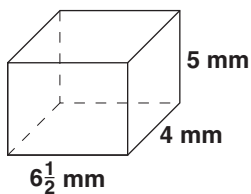
9.



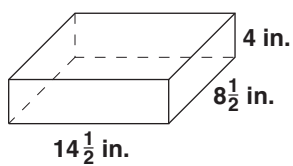
10.



11.



12.

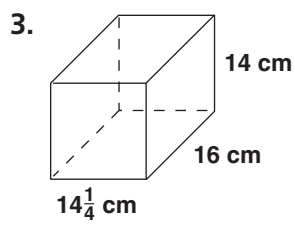
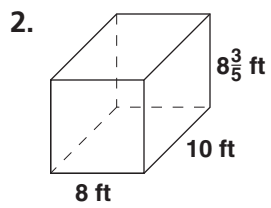
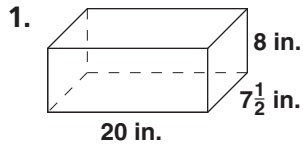


## Skill: Volume of a Box

### Investigation 4

#### Covering and Surrounding

Find the volume of each closed box.



**Skill: Volume of a Box** *(continued)*

**Investigation 4**

**Covering and Surrounding**

Find the volume of each closed box.

