



**Domain 4**

# Geometry

---

**Domain 4: Diagnostic Assessment for Lessons 24–31**

---

**Lesson 24** Area of Triangles  
6.G.1

**Lesson 25** Area of Quadrilaterals  
6.G.1

**Lesson 26** Area of Composite  
Polygons  
6.G.1

**Lesson 27** Polygons on the  
Coordinate Plane  
6.G.3

**Lesson 28** Solve Problems with Area  
6.G.1

**Lesson 29** Solid Figures  
6.G.4

**Lesson 30** Surface Area  
6.G.4

**Lesson 31** Volume  
6.G.2

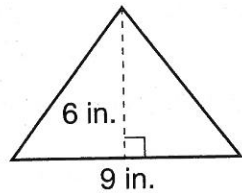
---

**Domain 4: Cumulative Assessment for Lessons 24–31**

---

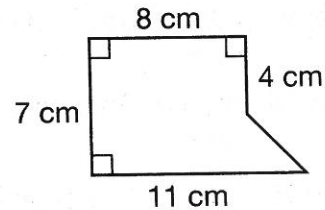
# Domain 4: Diagnostic Assessment for Lessons 24–31

1. What is the area of the triangle below?

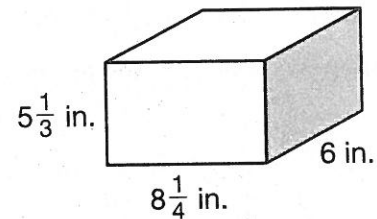


- A. 54 square inches
  - B. 27 square inches
  - C. 24 square inches
  - D. 13.5 square inches
2. Which solid figure has 3 faces that are rectangles and 2 faces that are triangles?
- A. triangular prism
  - B. triangular pyramid
  - C. square pyramid
  - D. rectangular prism

3. What is the area of this figure?



- A.  $60.5 \text{ cm}^2$
  - B.  $62 \text{ cm}^2$
  - C.  $65 \text{ cm}^2$
  - D.  $68 \text{ cm}^2$
4. What is the volume of this box?



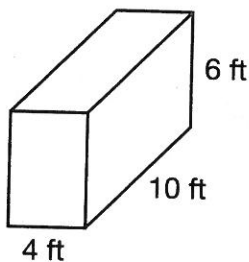
- A.  $240 \text{ in.}^3$
- B.  $264 \text{ in.}^3$
- C.  $324 \text{ in.}^3$
- D.  $528 \text{ in.}^3$

Domain 4: Diagnostic Assessment for Lessons 24–31

5. Which two solid figures have the same number of faces, edges, and vertices?

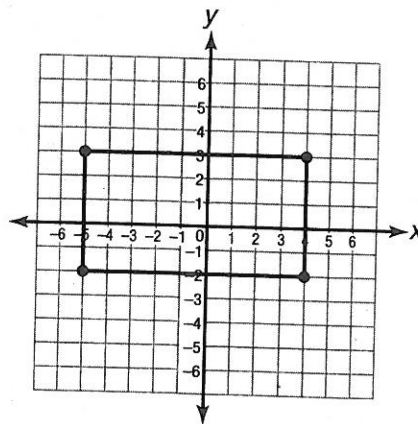
- A. rectangular prism and cube
- B. rectangular prism and rectangular pyramid
- C. triangular prism and triangular pyramid
- D. triangular pyramid and cube

6. Lakeisha measured the box shown below. What is the surface area of the box?



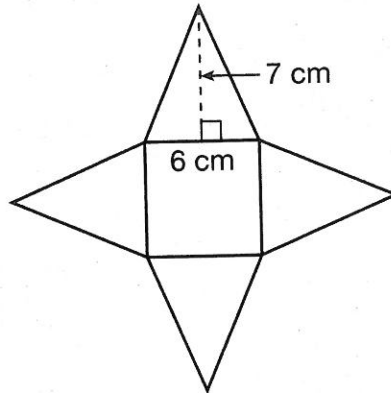
- A.  $124 \text{ ft}^2$
- B.  $224 \text{ ft}^2$
- C.  $240 \text{ ft}^2$
- D.  $248 \text{ ft}^2$

7. What is the perimeter of the rectangle on the coordinate plane below?

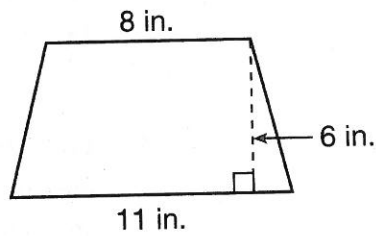


- A. 14 units
  - B. 28 units
  - C. 45 units
  - D. 56 units
8. Phil has a storage shed in his yard measuring  $6\frac{1}{2}$  feet by 9 feet by  $10\frac{1}{2}$  feet. What is the volume of the storage shed?
- A.  $274\frac{5}{8}$  cubic feet
  - B. 540 cubic feet
  - C.  $614\frac{1}{4}$  cubic feet
  - D. 693 cubic feet

9. The net of a square pyramid is shown below. What is the surface area of the pyramid?



10. Julio and Britney each calculated the area of the trapezoid below.



- A. Julio used the formula for the area of a trapezoid to find the area. Show Julio's work.
- B. Britney divided the trapezoid into two triangles to find the area. Show Britney's work.
- C. What is the area of the trapezoid?
-

**Step 1**

Substitute the values for the base and height into the formula.

The base,  $b$ , measures 12 feet and the height,  $h$ , measures 5 feet.

$$A = \frac{1}{2}bh$$

$$A = \frac{1}{2} \times 12 \times 5$$

**Step 2**

Multiply.

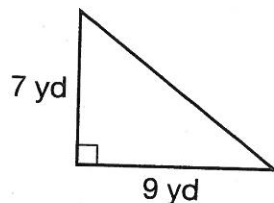
$$A = \frac{1}{2} \times 12 \times 5$$

$$A = 6 \times 5$$

$$A = 30$$

**Solution**The area of the triangle is 30 square feet, or 30 ft<sup>2</sup>.**Coached Example**

The Clemente family built a triangular deck at the back of their house, as shown below. What is the area of the Clementes' deck?



The deck is in the shape of a triangle.

The base of the triangle is \_\_\_\_\_ yards long and the height is \_\_\_\_\_ yards long.

The formula for the area of a triangle is  $A =$  \_\_\_\_\_.

Substitute the values for the base and height into the formula.

$$A = \frac{1}{2} \times \underline{\hspace{2cm}} \times \underline{\hspace{2cm}}$$

$$A = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}}$$

$$A = \underline{\hspace{2cm}}$$

What units should be used to express the area? \_\_\_\_\_

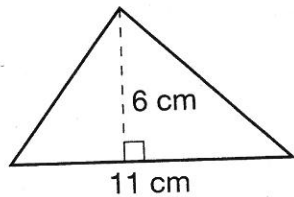
The area of the Clementes' deck is \_\_\_\_\_.



## Lesson Practice

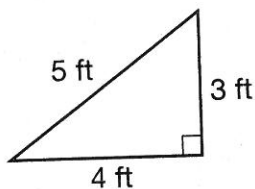
Choose the correct answer.

1. What is the area of this triangle?



- A.  $16.5 \text{ cm}^2$
- B.  $17 \text{ cm}^2$
- C.  $33 \text{ cm}^2$
- D.  $66 \text{ cm}^2$

2. What is the area of this triangle?

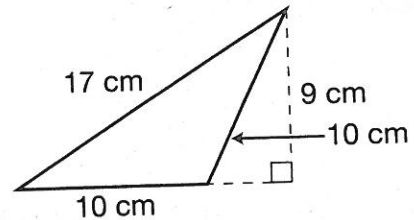


- A.  $6 \text{ ft}^2$
- B.  $12 \text{ ft}^2$
- C.  $13 \text{ ft}^2$
- D.  $22 \text{ ft}^2$

3. A triangular pennant has a base that is 9 inches long and a height of 19 inches. What is the area of the pennant?

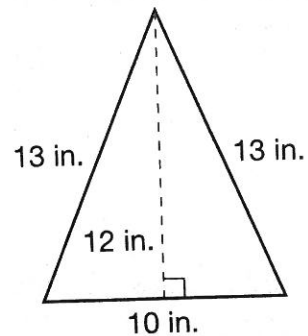
- A.  $14 \text{ in.}^2$
- B.  $28 \text{ in.}^2$
- C.  $85\frac{1}{2} \text{ in.}^2$
- D.  $171 \text{ in.}^2$

4. What is the area of this triangle?



- A.  $45 \text{ cm}^2$
- B.  $46 \text{ cm}^2$
- C.  $50 \text{ cm}^2$
- D.  $85 \text{ cm}^2$

5. What is the area of this triangle?

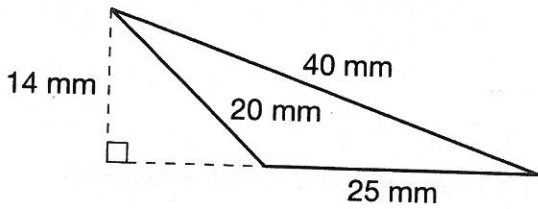


- A.  $39 \text{ in.}^2$
- B.  $60 \text{ in.}^2$
- C.  $65 \text{ in.}^2$
- D.  $120 \text{ in.}^2$

6. A flower bed in the shape of a right triangle has legs that measure 16 feet and 9 feet. What is the area of the flower bed?

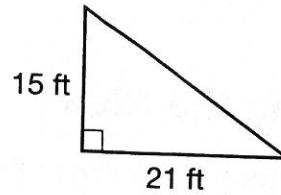
- A.  $12.5 \text{ ft}^2$
- B.  $25 \text{ ft}^2$
- C.  $72 \text{ ft}^2$
- D.  $144 \text{ ft}^2$

7. What is the area of this triangle?



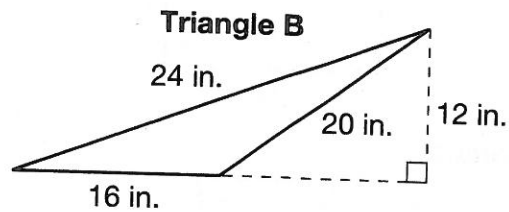
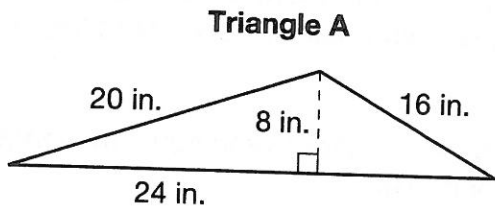
- A.  $140 \text{ mm}^2$
- B.  $175 \text{ mm}^2$
- C.  $200 \text{ mm}^2$
- D.  $400 \text{ mm}^2$

8. What is the area of this triangle?



- A.  $315 \text{ ft}^2$
- B.  $305 \text{ ft}^2$
- C.  $285 \text{ ft}^2$
- D.  $157\frac{1}{2} \text{ ft}^2$

9. Mrs. Green drew these two triangles on the board.



A. What is the area of triangle A? Show your work.

B. What is the area of triangle B? Show your work.

C. What do you notice about the two triangles? Explain your answer.

---



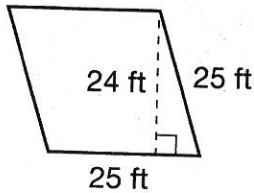
---



## Lesson Practice

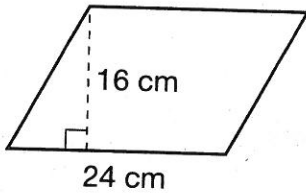
Choose the correct answer.

1. What is the area of this rhombus?



- A.  $100 \text{ ft}^2$
- B.  $576 \text{ ft}^2$
- C.  $600 \text{ ft}^2$
- D.  $625 \text{ ft}^2$

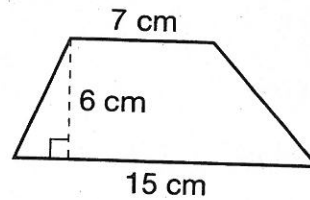
2. What is the area of this parallelogram?



- A.  $288 \text{ cm}^2$
- B.  $384 \text{ cm}^2$
- C.  $504 \text{ cm}^2$
- D.  $576 \text{ cm}^2$

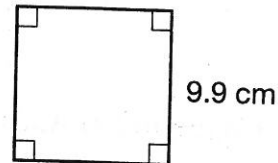
3. Nikki's bedroom is shaped like a rectangle that is 18 feet long and 12 feet wide. She wants to carpet the entire room. How many square feet of carpeting does she need?
- A. 40 square feet
  - B. 80 square feet
  - C. 108 square feet
  - D. 216 square feet

4. What is the area of this trapezoid?



- A.  $28 \text{ cm}^2$
- B.  $66 \text{ cm}^2$
- C.  $132 \text{ cm}^2$
- D.  $630 \text{ cm}^2$

5. What is the area of this square?



- A.  $3.3 \text{ cm}^2$
- B.  $39.6 \text{ cm}^2$
- C.  $81.81 \text{ cm}^2$
- D.  $98.01 \text{ cm}^2$

6. Lex built a rectangular pen outdoors for his dog Luther. The pen is 36 feet long and 27 feet wide. What is the area of the pen?
- A.  $126 \text{ ft}^2$
  - B.  $486 \text{ ft}^2$
  - C.  $972 \text{ ft}^2$
  - D.  $3,969 \text{ ft}^2$



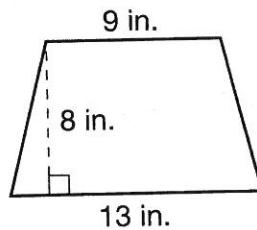
7. Mae's rose garden is in the shape of a trapezoid with a height of 35 feet. The bases of the garden measure 50 feet and 32 feet. What is the area of Mae's rose garden?

- A.  $58\frac{1}{2} \text{ ft}^2$
- B.  $1,360 \text{ ft}^2$
- C.  $1,435 \text{ ft}^2$
- D.  $2,870 \text{ ft}^2$

8. The schoolyard at Kenny's school is a square that is 50 yards long on each side. What is the area of the schoolyard?

- A.  $2,500 \text{ yd}^2$
- B.  $2,000 \text{ yd}^2$
- C.  $250 \text{ yd}^2$
- D.  $200 \text{ yd}^2$

9. Amanda drew the trapezoid shown below.



- A. What is the area of Amanda's trapezoid? Show your work.

---

- B. Explain how the formula for the area of a triangle can be used to find the area of Amanda's trapezoid.

---

---

---

**Step 2** Find the area of the rectangle.

$$A = lw = 10 \times 9 = 90$$

**Step 3** Find the area of the triangle.

The length of the base is 4 centimeters since  $10 - 6 = 4$ .

$$A = \frac{1}{2}bh = \frac{1}{2} \times 4 \times 3 = 6$$

**Step 4** Add the areas.

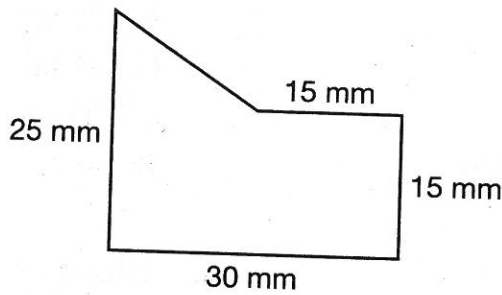
$$90 + 6 = 96$$

**Solution** The area of the figure is 96 square centimeters, or 96 cm<sup>2</sup>.



### Coached Example

What is the area of this figure?



Divide the figure into a rectangle and a triangle.

The dimensions of the rectangle are \_\_\_\_\_ by \_\_\_\_\_.

The formula for the area of a rectangle is  $A =$  \_\_\_\_\_.

$$A = \text{_____} \times \text{_____} = \text{_____}$$

The area of the rectangle is \_\_\_\_\_ square millimeters.

In millimeters, the base of the triangle is  $30 -$  \_\_\_\_\_  $=$  \_\_\_\_\_.

In millimeters, the height of the triangle is  $25 -$  \_\_\_\_\_  $=$  \_\_\_\_\_.

The formula for the area of a triangle is  $A =$  \_\_\_\_\_.

$$A = \text{_____} \times \text{_____} \times \text{_____} = \text{_____}$$

The area of the triangle is \_\_\_\_\_ square millimeters.

Add the areas. \_\_\_\_\_  $+$  \_\_\_\_\_  $=$  \_\_\_\_\_

The area of the figure is \_\_\_\_\_ square millimeters.

# Area of Quadrilaterals



## Getting the Idea

A **quadrilateral** is a polygon that has 4 sides. You can use formulas to find the areas of quadrilaterals.

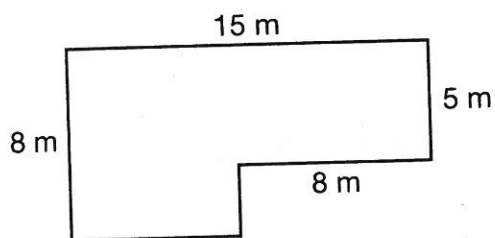
Figure	Area Formula
<p><b>Parallelogram</b></p>	$A = bh$ , where $b$ represents the base length and $h$ represents the height
<p><b>Rectangle</b></p>	$A = lw$ , where $l$ represents the length and $w$ represents the height Or $A = bh$ , where $b$ represents the base length and $h$ represents the height
<p><b>Square</b></p>	$A = s^2$ , where $s$ represents the length of a side
<p><b>Rhombus</b></p>	$A = bh$ , where $b$ represents the base length and $h$ represents the height
<p><b>Trapezoid</b></p>	$A = \frac{1}{2}h(b_1 + b_2)$ , where $h$ represents the height and $b_1$ and $b_2$ represent the lengths of the bases



## Lesson Practice

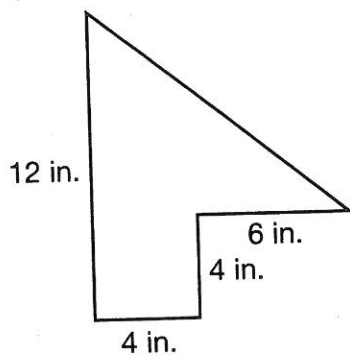
Choose the correct answer.

1. What is the area of this figure?



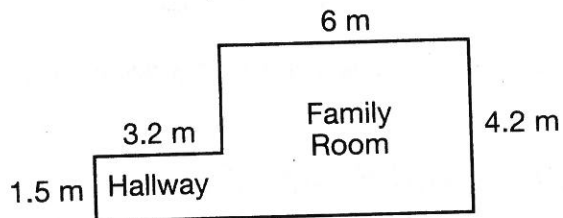
- A.  $106 \text{ m}^2$
- B.  $96 \text{ m}^2$
- C.  $56 \text{ m}^2$
- D.  $36 \text{ m}^2$

2. What is the area of this figure?



- A.  $52 \text{ in.}^2$
- B.  $56 \text{ in.}^2$
- C.  $76 \text{ in.}^2$
- D.  $96 \text{ in.}^2$

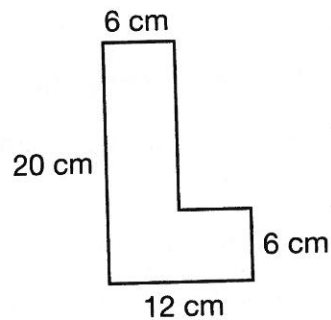
3. Mr. Blackburn is buying new carpet for his family room and hallway. The floor plan is shown below.



How much carpet does he need?

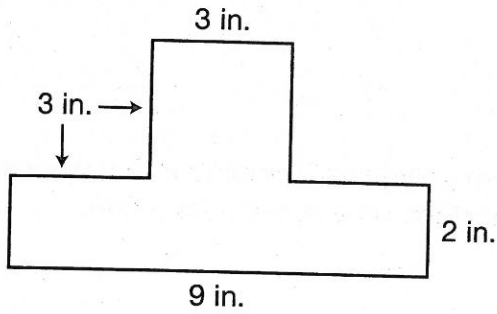
- A.  $30 \text{ m}^2$
- B.  $27 \text{ m}^2$
- C.  $25.2 \text{ m}^2$
- D.  $14.9 \text{ m}^2$

4. What is the area of this figure?



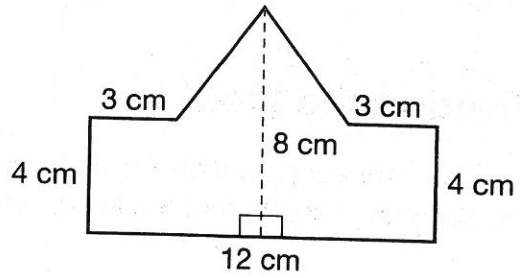
- A.  $240 \text{ cm}^2$
- B.  $192 \text{ cm}^2$
- C.  $156 \text{ cm}^2$
- D.  $40 \text{ cm}^2$

5. What is the area of this figure?



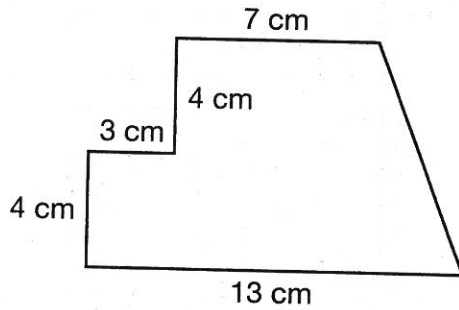
- A.  $25 \text{ in.}^2$
- B.  $27 \text{ in.}^2$
- C.  $28 \text{ in.}^2$
- D.  $30 \text{ in.}^2$

6. What is the area of this figure?



- A.  $96 \text{ cm}^2$
- B.  $80 \text{ cm}^2$
- C.  $72 \text{ cm}^2$
- D.  $60 \text{ cm}^2$

7. Use this figure to answer the questions below.



A. What is the area of the figure?

B. Explain how you found your answer to part A.

---



---



---

# Polygons on the Coordinate Plane



## Getting the Idea

You can connect points on a coordinate plane to form polygons. Remember that you can use absolute value to find the length of a side of a polygon on a coordinate plane.

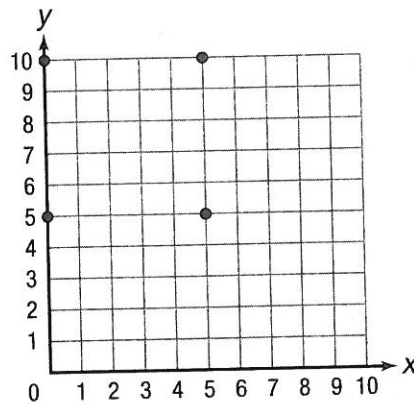
### Example 1

Plot the points  $(5, 10)$ ,  $(5, 5)$ ,  $(0, 5)$ , and  $(0, 10)$  on a coordinate grid. Then connect the points. What figure is formed?

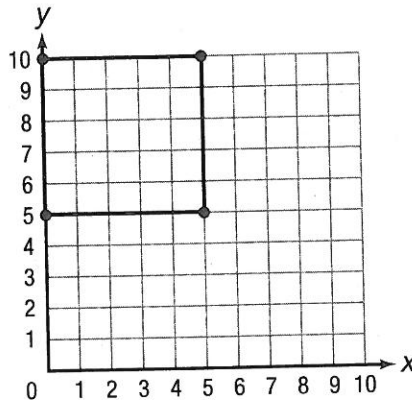
**Strategy** Plot the points. Then connect the points to identify the figure formed.

**Step 1** Plot each point on the grid.

Plot each point.



**Step 2** Connect the points.

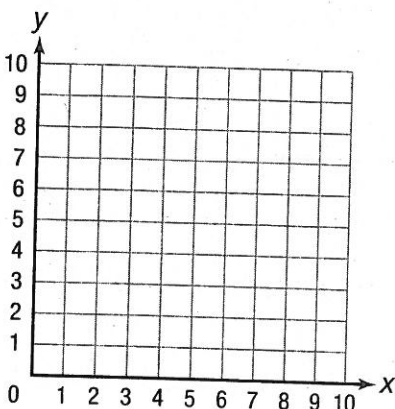




## Lesson Practice

Choose the correct answer.

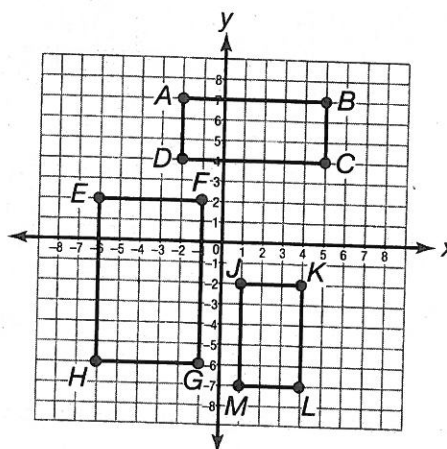
Use the coordinate grid for questions 1 and 2.



- Draw and connect the points  $(1, 9)$ ,  $(4, 9)$ ,  $(4, 7)$ , and  $(1, 7)$ . Which best describes the kind of geometric figure that is formed?
  - square
  - rhombus
  - rectangle
  - pentagon
- Draw and connect the points  $(5, 1)$ ,  $(6, 4)$ ,  $(9, 4)$ , and  $(10, 1)$ . Which best describes the kind of geometric figure that is formed?
  - rhombus
  - trapezoid
  - rectangle
  - hexagon

Use the coordinate grid and the information below for questions 3 and 4.

Debra drew designs for 3 different tables on the grid below.

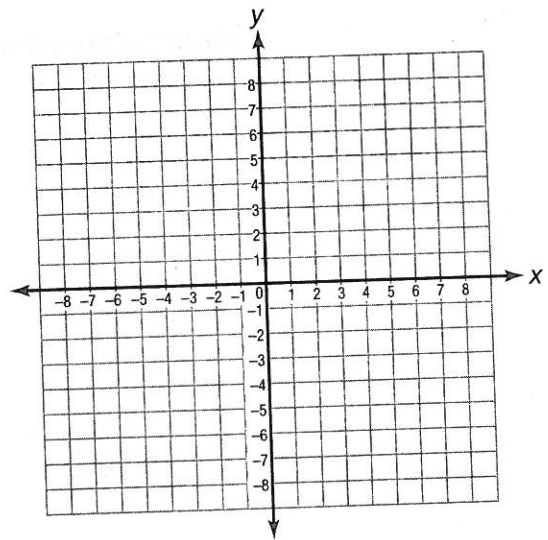


Scale:  $1 \text{ unit} = 1 \text{ foot}$

- What will be the perimeter of the table represented by figure  $EFGH$ ?
  - 13 feet
  - 22 feet
  - 26 feet
  - 40 feet
- How much greater will the area of the table represented by figure  $ABCD$  be than that of the table represented by figure  $JKLM$ ?
  - 6 square feet
  - 19 square feet
  - 27 square feet
  - 40 square feet

5. Allan drew a floor plan for a theater's stage on a coordinate plane. He used the points  $(-3, 4)$ ,  $(6, 4)$ ,  $(6, -1)$ , and  $(-3, -1)$ .

A. Plot and connect the points he used on the coordinate plane below.



Scale:  $\square = 5$  feet

B. What will be the area of the stage?

---

C. Explain how you found the area of the stage.

---

---

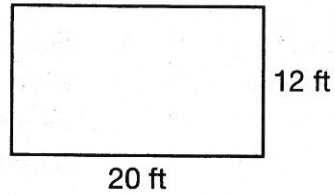
---





### Coached Example

Carrie needs to paint her garage door. The dimensions of the door are shown below.



**What is the area of the garage door?**

The formula for the area of rectangle is  $A = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}}$

Identify the values of length,  $l$ , and width,  $w$ .

$l = \underline{\hspace{2cm}}$  and  $w = \underline{\hspace{2cm}}$

Substitute the values into the formula and solve. Show your work.

What type of units should Carrie use in the answer? \_\_\_\_\_

**The area of the garage door is** \_\_\_\_\_.



## Lesson Practice

Choose the correct answer.

- A middle school basketball court is 74 feet long and 42 feet wide. What is the area of the basketball court?
  - 232 ft<sup>2</sup>
  - 2,808 ft<sup>2</sup>
  - 3,018 ft<sup>2</sup>
  - 3,108 ft<sup>2</sup>
- Carlos is buying carpeting that costs \$22 per square yard. How much will it cost to cover his rectangular living room floor, which is 4 yards wide and 5 yards long?
  - \$198
  - \$220
  - \$440
  - \$484
- Jessica wants to seed her backyard with grass seed. Her yard is 120 feet long and 90 feet wide. If Jessica buys bags of seed that cover 600 square feet, how many bags of seed will she need?
  - 5
  - 18
  - 21
  - 45
- Jack's bedroom is 14 feet long and 11 feet wide. Annie's bedroom is square, with each side measuring 12 feet. Which statement is true?
  - Annie's bedroom is 10 square feet larger than Jack's bedroom.
  - Jack's bedroom is 2 square feet larger than Annie's bedroom.
  - Annie's bedroom is 2 square feet larger than Jack's bedroom.
  - Jack's bedroom is 10 square feet larger than Annie's bedroom.
- A triangular sail has two sides that meet at a right angle. Both sides are 9 yards long. What is the area of the sail?
  - $40\frac{1}{2}$  ft<sup>2</sup>
  - 45 ft<sup>2</sup>
  - 81 ft<sup>2</sup>
  - 162 ft<sup>2</sup>
- A commemorative plaque is in the shape of a trapezoid with a height of 8 inches and bases that measure 12 inches and 15 inches. What is the area of the plaque?
  - 108 in.<sup>2</sup>
  - 135 in.<sup>2</sup>
  - 150 in.<sup>2</sup>
  - 163 ft<sup>2</sup>

Patel is covering a rectangular-shaped trivet with 1-inch square tiles that cost \$0.15 each. The base of the trivet is 14 inches long and its height is 9 inches. How much will it cost to tile the trivet?

- A. \$1.89
- B. \$1.95
- C. \$18.90
- D. \$19.50

8. A suncatcher has 6 sections. Each section is in the shape of a parallelogram with a base of 12 cm and a height of 8 cm. What is the total area of the sections?

- A.  $768 \text{ cm}^2$
- B.  $576 \text{ cm}^2$
- C.  $432 \text{ cm}^2$
- D.  $120 \text{ cm}^2$

9. Brett has a square vegetable garden that measures 18 ft on each side. One bag of fertilizer can cover 54 square feet.

A. What is the area of the vegetable garden? Show your work.

B. How many bags of fertilizer will Brett need to cover the entire garden? Explain how you found your answer.

---

---

---

# Solid Figures



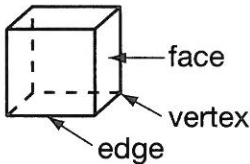
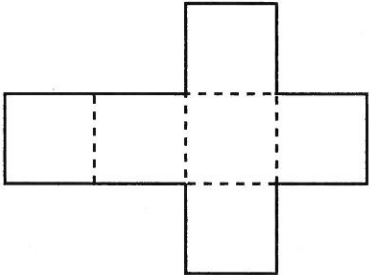
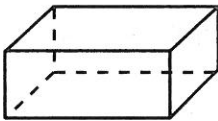
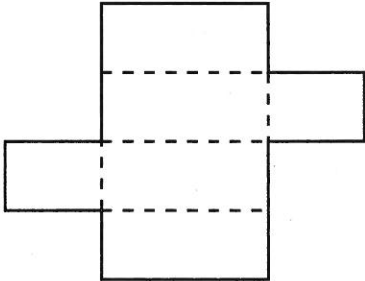
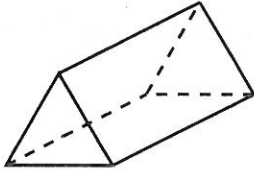
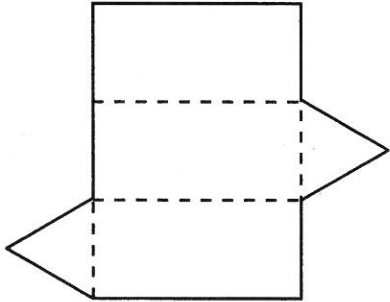
## Getting the Idea

**Solid figures**, also called **three-dimensional figures**, are figures that have length, width, and height.

Solid figures can be classified by the number of faces, edges, and vertices they have. A **face** is a flat surface of a solid figure. An **edge** is a line segment where two faces of a solid figure meet. A **vertex** is the point where three or more edges of a solid figure meet. The plural of vertex is vertices.

A **net** is flat pattern that can be folded into a three-dimensional figure. A net shows each surface of the solid figure it forms.

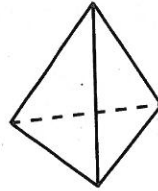
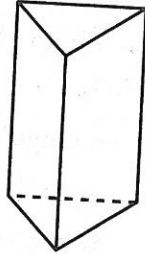
A **prism** is a three-dimensional figure with a pair of parallel faces called **bases** that are congruent polygons. Its other faces are rectangles or parallelograms. The table below shows some common prisms and their nets.

Cube	Rectangular Prism	Triangular Prism
 	 	 
<p>6 faces 12 edges 8 vertices</p>	<p>6 faces 12 edges 8 vertices</p>	<p>5 faces 9 edges 6 vertices</p>



## Coached Example

How are a triangular prism and a triangular pyramid alike? How are they different?



A triangular prism has \_\_\_\_\_ faces.

A triangular pyramid has \_\_\_\_\_ faces.

A triangular prism has two bases that are \_\_\_\_\_.

A triangular pyramid has one base that is a \_\_\_\_\_.

The faces of a triangular prism are \_\_\_\_\_ and \_\_\_\_\_.

The faces of a triangular pyramid are all \_\_\_\_\_.

List the similarities in the figures.

A triangular prism and a triangular pyramid each have a \_\_\_\_\_ base.

List the differences in the figures.

A triangular prism has \_\_\_\_\_ faces, but a triangular pyramid has \_\_\_\_\_ faces.

The faces of a triangular prism are \_\_\_\_\_ and \_\_\_\_\_, but the faces of a triangular pyramid are all \_\_\_\_\_.

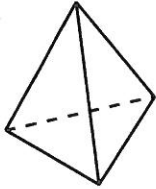


## Lesson Practice

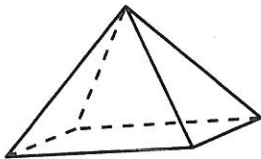
Choose the correct answer.

1. Which solid figure has 6 faces?

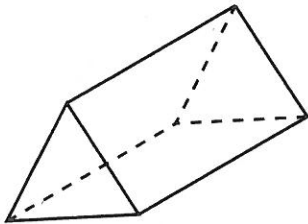
A.



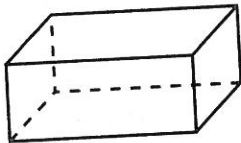
B.



C.



D.



2. Which solid figure has only one base?

- A. rectangular pyramid
- B. cube
- C. rectangular prism
- D. triangular prism

3. Which figure has twice as many edges as faces?

- A. rectangular pyramid
- B. triangular pyramid
- C. rectangular prism
- D. triangular prism

4. Which of these solid figures can only be made from one type of polygon?

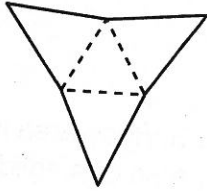
- A. triangular prism
- B. triangular pyramid
- C. rectangular pyramid
- D. rectangular prism

5. Which of the following is true about a cube?

- I It has 8 vertices.
- II It has 6 faces.
- III It has 8 edges.

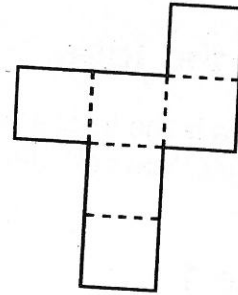
- A. I and II
- B. II and III
- C. I and III
- D. I, II, and III

6. Which solid figure can be made from this net?



- A. rectangular prism
- B. rectangular pyramid
- C. triangular pyramid
- D. triangular prism

7. Which three-dimensional figure can be made from this net?



- A. rectangular pyramid
- B. cube
- C. triangular prism
- D. triangular pyramid

8. A triangular pyramid has 4 faces, 6 edges, and 4 vertices. A rectangular pyramid has 5 faces, 8 edges, and 5 vertices.

- A. How many faces, edges, and vertices would a pentagonal pyramid have?

---

- B. What kind or kinds of polygons would you need to construct a pentagonal pyramid? How many of each kind or kinds of polygons would you need?

---



---

# Surface Area

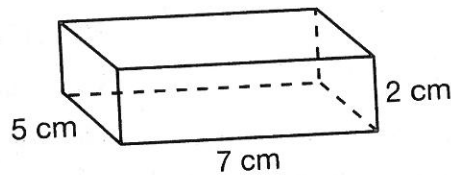


## Getting the Idea

**Surface area** is the total area of the surfaces of a solid figure. Surface area is measured in square units. You can use a net to help you find the surface area of a solid figure.

### Example 1

What is the surface area of this rectangular prism?



**Strategy** Use a net.

#### Step 1

Draw the net showing the dimensions.

Find the area of each face.

$$A = 7 \times 5 = 35$$

$$A = 2 \times 5 = 10$$

$$A = 7 \times 2 = 14$$

$$A = 2 \times 5 = 10$$

$$A = 7 \times 5 = 35$$

$$A = 7 \times 2 = 14$$

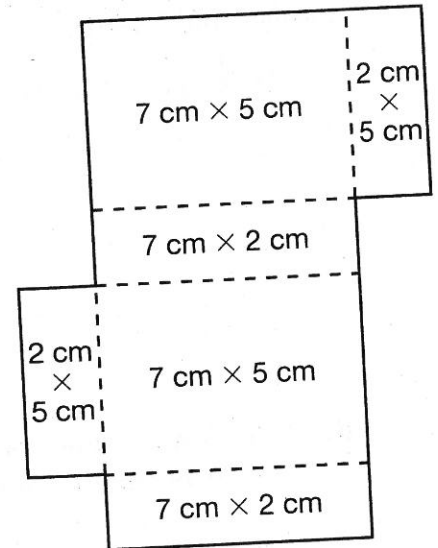
#### Step 2

Add the areas to find the total surface area.

$$35 + 10 + 14 + 10 + 35 + 14 = 118$$

**Solution**

The surface area of the rectangular prism is  $118 \text{ cm}^2$ .



A formula can be used to find the surface area (SA) of a rectangular prism:

$$SA = 2lw + 2lh + 2wh, \text{ where } l \text{ is the length, } w \text{ is the width, and } h \text{ is the height}$$

You may also see S.A. used for surface area in some formulas.

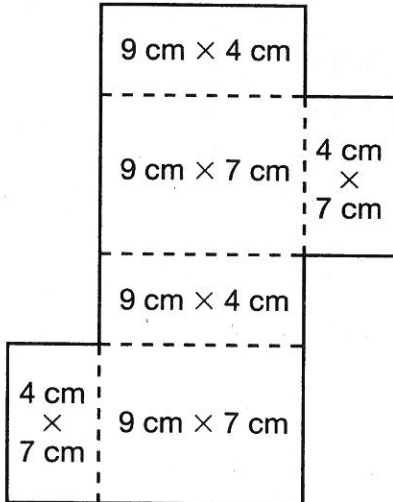




## Lesson Practice

Choose the correct answer.

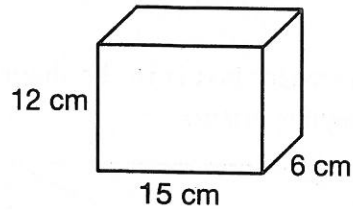
1. The net for a rectangular prism is shown below.



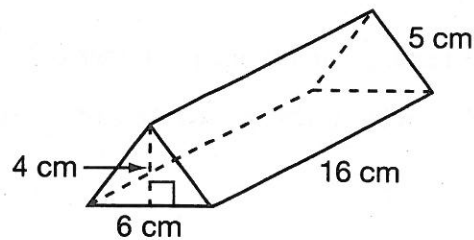
What is the surface area of the rectangular prism?

- A.  $504 \text{ cm}^2$   
 B.  $254 \text{ cm}^2$   
 C.  $252 \text{ cm}^2$   
 D.  $127 \text{ cm}^2$
2. What is the surface area of a cube with edge lengths of 12 inches?
- A.  $144 \text{ in.}^2$   
 B.  $432 \text{ in.}^2$   
 C.  $864 \text{ in.}^2$   
 D.  $1,728 \text{ in.}^2$

3. What is the surface area of this rectangular prism?



- A.  $342 \text{ cm}^2$   
 B.  $540 \text{ cm}^2$   
 C.  $684 \text{ cm}^2$   
 D.  $1,080 \text{ cm}^2$
4. What is the surface area of this triangular prism?

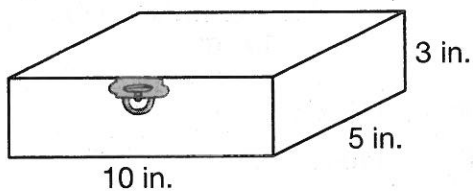


- A.  $264 \text{ cm}^2$   
 B.  $280 \text{ cm}^2$   
 C.  $312 \text{ cm}^2$   
 D.  $324 \text{ cm}^2$

5. Helena wants to paint a box in the shape of a cube with sides that are 18 inches long. What is the surface area that Helena will paint?

A.  $324 \text{ in.}^2$                       C.  $1,296 \text{ in.}^2$   
B.  $648 \text{ in.}^2$                       D.  $1,944 \text{ in.}^2$

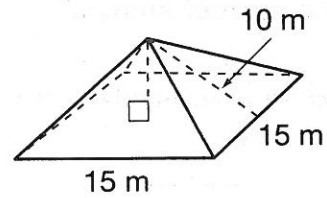
6. Erin's jewelry box is in the shape of a rectangular prism.



What is the surface area of Erin's jewelry box?

A.  $95 \text{ in.}^2$                       C.  $160 \text{ in.}^2$   
B.  $150 \text{ in.}^2$                       D.  $190 \text{ in.}^2$

7. What is the surface area of the square pyramid.



A.  $525 \text{ m}^2$   
B.  $275 \text{ m}^2$   
C.  $200 \text{ m}^2$   
D.  $175 \text{ m}^2$

8. A rectangular storage container is 15 feet long, 12 feet wide, and 8 feet high.

A. What is the surface area of the storage container, including the floor? Show your work.

B. Explain how you found your answer.

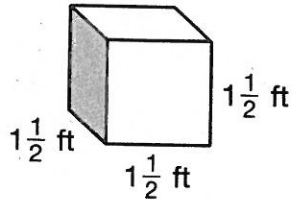
---

---

---

**Example 4**

What is the volume of this cube?



**Strategy** Use the formula for the volume of a cube.

Each side,  $s$ , measures  $1\frac{1}{2}$  feet or  $\frac{3}{2}$  feet.

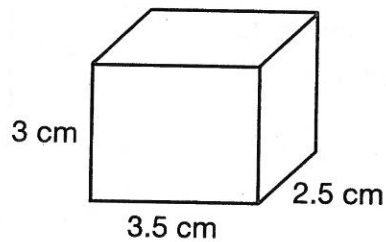
$$V = s^3 = s \times s \times s$$

$$V = \frac{3}{2} \times \frac{3}{2} \times \frac{3}{2} = \frac{27}{8} = 3\frac{3}{8}$$

**Solution** The volume of the cube is  $3\frac{3}{8}$  cubic feet, or  $3\frac{3}{8} \text{ ft}^3$ .

**Coached Example**

What is the volume of a rectangular prism with the dimensions shown below?



The formula for the volume of a rectangular prism is  $V = \underline{\hspace{2cm}}$ .

Substitute known values into the formula.

Length ( $l$ ) =                           Width ( $w$ ) =                           Height ( $h$ ) =                     

$$V = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$$

$$V = \underline{\hspace{2cm}}$$

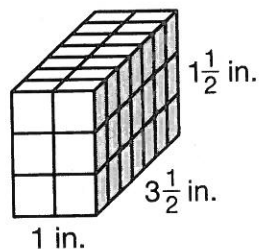
The volume of the prism shown above is                      cubic centimeters.



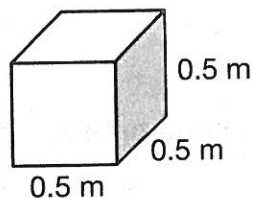
## Lesson Practice

Choose the correct answer.

Use the rectangular prism below for questions 1 and 2.

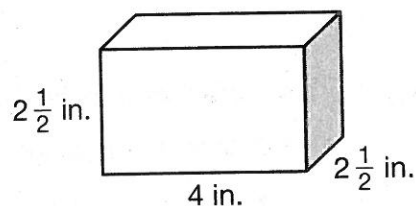


- How many cubes are inside the rectangular prism?  
A. 27 cubes                      C. 41 cubes  
B. 28 cubes                      D. 42 cubes
- If each cube has a volume of  $\frac{1}{8}$  cubic inch, what is the volume of the rectangular prism?  
A.  $3\frac{1}{4}$  in.<sup>3</sup>                      C.  $6\frac{1}{4}$  in.<sup>3</sup>  
B.  $5\frac{1}{4}$  in.<sup>3</sup>                      D. 42 in.<sup>3</sup>
- What is the volume of the cube shown below?



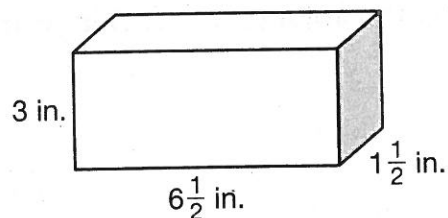
- A.  $0.125 \text{ m}^3$                       C.  $1.25 \text{ m}^3$   
B.  $0.25 \text{ m}^3$                       D.  $1.5 \text{ m}^3$

- What is the volume of this rectangular prism?



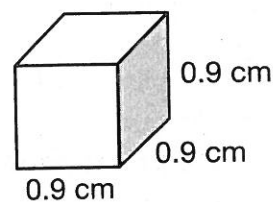
- A.  $9 \text{ in.}^3$                       C.  $50 \text{ in.}^3$   
B.  $25 \text{ in.}^3$                       D.  $100 \text{ in.}^3$

- What is the volume of this rectangular prism?



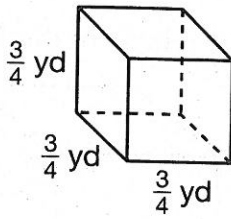
- A.  $18\frac{3}{8} \text{ in.}^3$                       C.  $29\frac{1}{4} \text{ in.}^3$   
B.  $27 \text{ in.}^3$                       D.  $40\frac{1}{2} \text{ in.}^3$

- What is the volume of this cube?



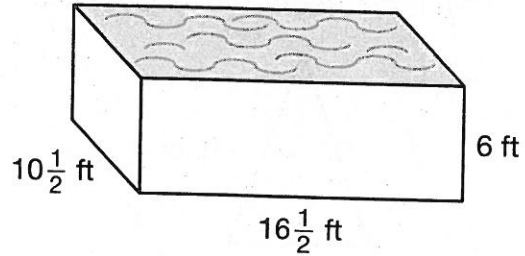
- A.  $7.29 \text{ cm}^3$   
B.  $0.729 \text{ cm}^3$   
C.  $0.27 \text{ cm}^3$   
D.  $0.027 \text{ cm}^3$

7. Keiko bought this plastic storage box for her room. What is the volume of the box?



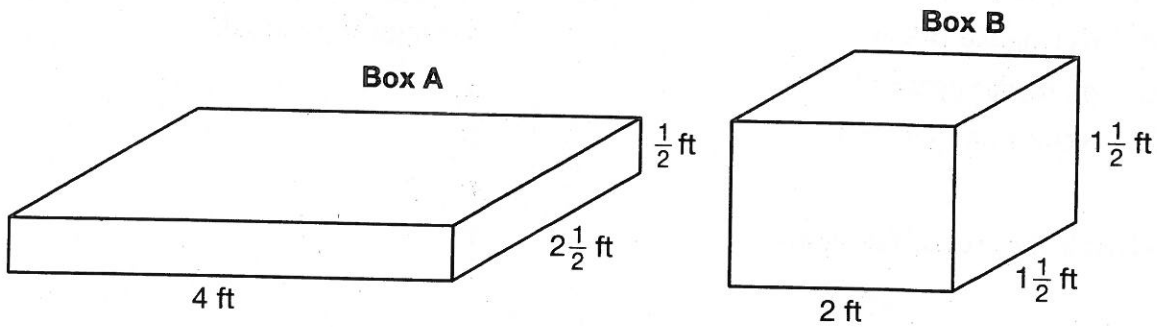
- A.  $\frac{27}{64}$  yd<sup>3</sup>
- B.  $\frac{3}{4}$  yd<sup>3</sup>
- C.  $2\frac{1}{4}$  yd<sup>3</sup>
- D.  $6\frac{3}{4}$  yd<sup>3</sup>

8. What is the maximum number of cubic feet of water this swimming pool can hold?



- A.  $1,039\frac{1}{2}$  ft<sup>3</sup>
- B.  $1,030\frac{1}{2}$  ft<sup>3</sup>
- C.  $961\frac{1}{2}$  ft<sup>3</sup>
- D.  $960\frac{1}{4}$  ft<sup>3</sup>

9. A self-storage facility sells the two boxes shown below.



- A. Find the volume of Box A, in cubic feet, showing each step in the process.

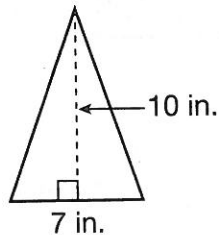
---

- B. Which box has the greater volume, box A or box B? Show each step of your work.

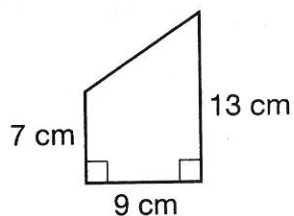
---

# Domain 4: Cumulative Assessment for Lessons 24–31

1. What is the area of the triangle below?

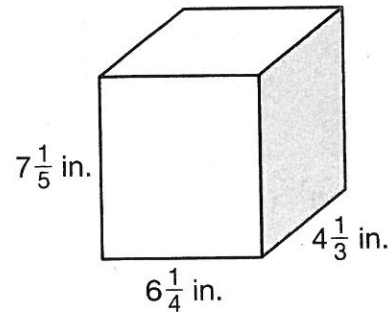


- A. 70 square inches
  - B. 35 square inches
  - C. 25 square inches
  - D. 17.5 square inches
2. Which solid figure has 4 faces that are triangles and 1 face that is a rectangle?
- A. triangular prism
  - B. rectangular prism
  - C. triangular pyramid
  - D. rectangular pyramid
3. What is the area of this figure?



- A.  $63 \text{ cm}^2$
- B.  $90 \text{ cm}^2$
- C.  $91 \text{ cm}^2$
- D.  $117 \text{ cm}^2$

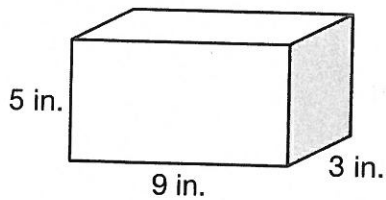
4. What is the volume of this box?



- A.  $168 \text{ in.}^3$
  - B.  $195 \text{ in.}^3$
  - C.  $224 \text{ in.}^3$
  - D.  $585 \text{ in.}^3$
5. What is the difference in the number of edges in a rectangular prism and a rectangular pyramid?
- A. 1
  - B. 2
  - C. 3
  - D. 4

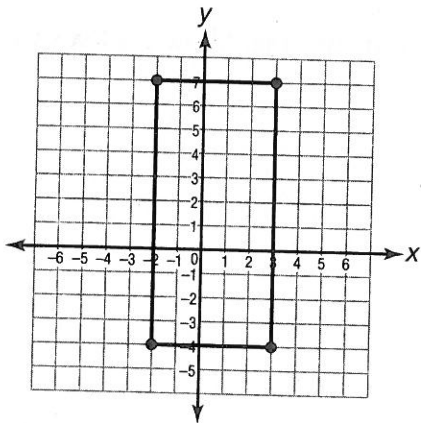
Domain 4: Cumulative Assessment for Lessons 24–31

6. Keeshawn measured the box shown below.



What is the surface area of the box?

- A.  $175 \text{ in.}^2$
  - B.  $174 \text{ in.}^2$
  - C.  $135 \text{ in.}^2$
  - D.  $87 \text{ in.}^2$
7. A rectangle is drawn on the coordinate plane below.



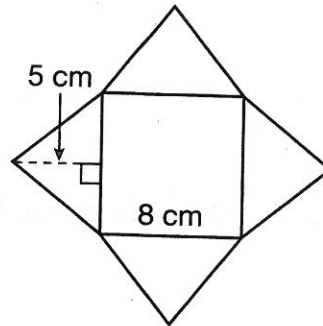
What is the perimeter of the rectangle?

- A. 11 units
- B. 22 units
- C. 32 units
- D. 55 units

8. A storage room measures  $9\frac{1}{2}$  feet by 6 feet by  $9\frac{1}{2}$  feet. What is the volume of the storage room?

- A. 57 cubic feet
- B. 486 cubic feet
- C.  $541\frac{1}{2}$  cubic feet
- D.  $586\frac{5}{8}$  cubic feet

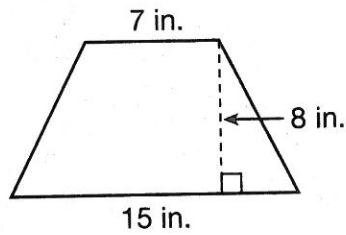
9. The net of a square pyramid is shown below.



What is the surface area of the pyramid?

---

10. Jonathan and Emma found the area of the trapezoid below.



- A. Jonathan used the formula for the area of a trapezoid to find the area. Show Jonathan's work.

- B. Emma divided the trapezoid into two triangles to find the area. Show Emma's work.

- C. What is the area of the trapezoid?
-