

? Topic Essential Question

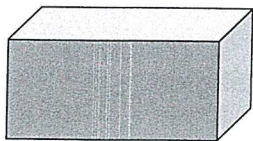
How can the areas of certain shapes be found? What are the meanings of surface area and volume and how can surface area and volume be found?

Vocabulary Review

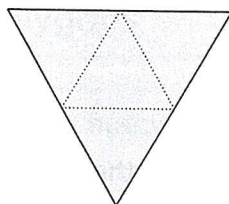
Write the vocabulary term that best represents each item.

Vocabulary net rhombus trapezoid vertex volume

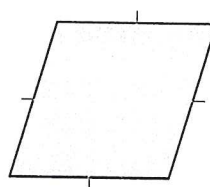
1. The measure of the space this solid figure occupies.



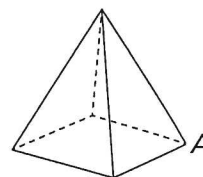
2.



3.

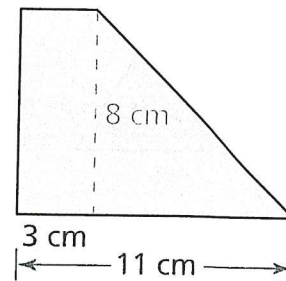


4. Point A



Use Vocabulary in Writing

Describe how to find the area of the quadrilateral. Use vocabulary words in your explanation.



Concepts and Skills Review

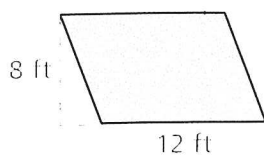
LESSON 7-1 Find Areas of Parallelograms and Rhombuses

Quick Review

You can use the formula $A = bh$ to find the area of a parallelogram or a rhombus.

Example

Find the area of the parallelogram.



$$A = bh$$

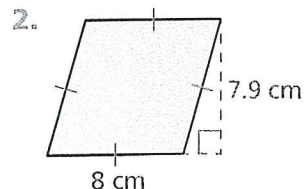
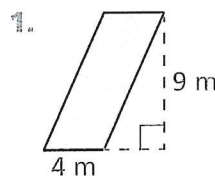
$$A = 12 \times 8$$

$$A = 96$$

The area of the parallelogram is 96 ft^2 .

Practice

In 1–4, find the area of each parallelogram or rhombus.



3. Rhombus

$$b = 14 \text{ in.}$$

$$h = 9 \text{ in.}$$

4. Parallelogram

$$b = 12 \text{ ft}$$

$$h = 8.5 \text{ ft}$$

5. A rhombus has an area of 375 mm^2 and a base of 25 mm. What is its height?

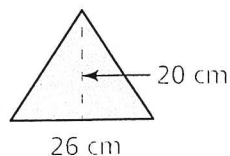
LESSON 7-2 Solve Triangle Area Problems

Quick Review

You can use the formula $A = \frac{1}{2}bh$ to find the area of any triangle.

Example

Find the area of the triangle.

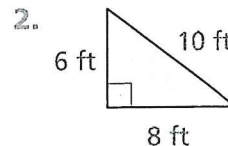
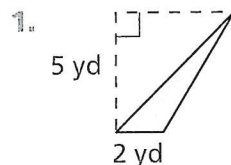


$$A = \frac{1}{2} \times (26 \times 20)$$

$$A = 260 \text{ cm}^2$$

Practice

Find the area of each triangle.



3. $b = 12.4 \text{ cm}$

$$h = 18 \text{ cm}$$

4. $b = 3.5 \text{ m}$

$$h = 6 \text{ m}$$

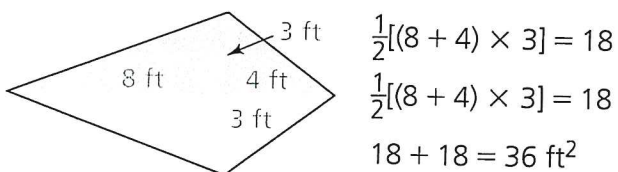
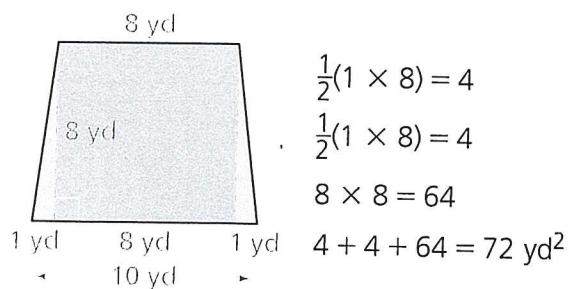
LESSON 7-3 Find Areas of Trapezoids and Kites

Quick Review

You can find the area of a trapezoid by decomposing it into a rectangle and one or more triangles. You can find the area of a kite by decomposing it into triangles.

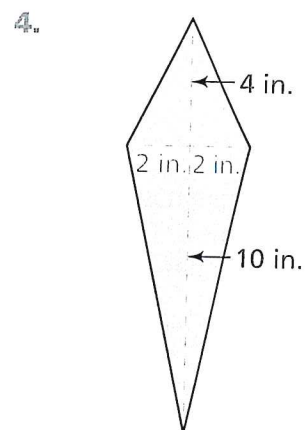
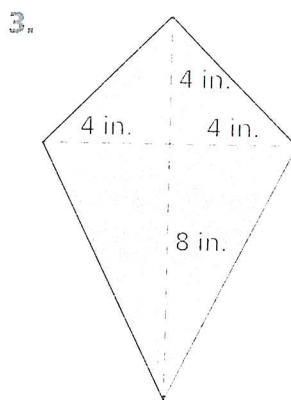
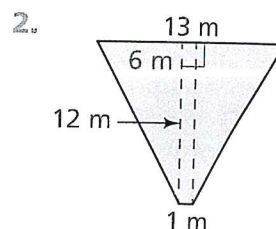
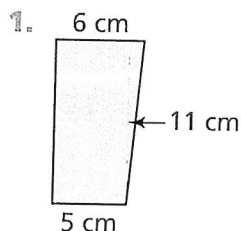
Example

Find the area of the trapezoid and the kite.



Practice

Find the area of each trapezoid or kite.



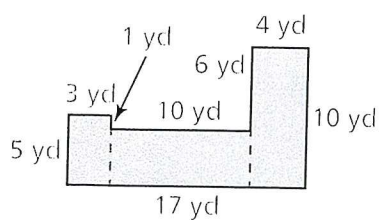
LESSON 7-4 Find Areas of Polygons

Quick Review

To find the area of a polygon, you can decompose or compose shapes, then use addition or subtraction to calculate the area.

Example

Find the area of the polygon.

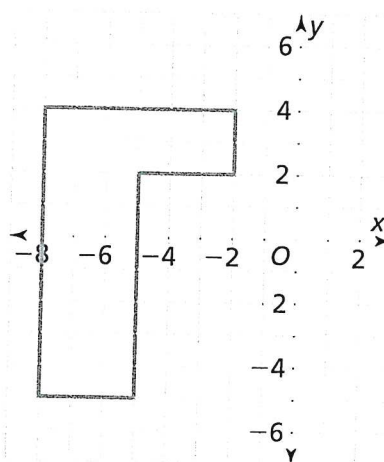


$$\begin{aligned} \text{Area} &= (3 \times 5) + (10 \times 4) + (4 \times 10) \\ &= 15 + 40 + 40 = 95 \end{aligned}$$

The area of the polygon is 95 yd^2 .

Practice

1. Find the area of the polygon.

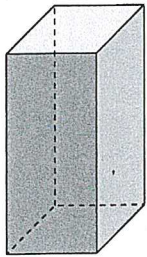


Quick Review

You can use nets to represent solid figures.

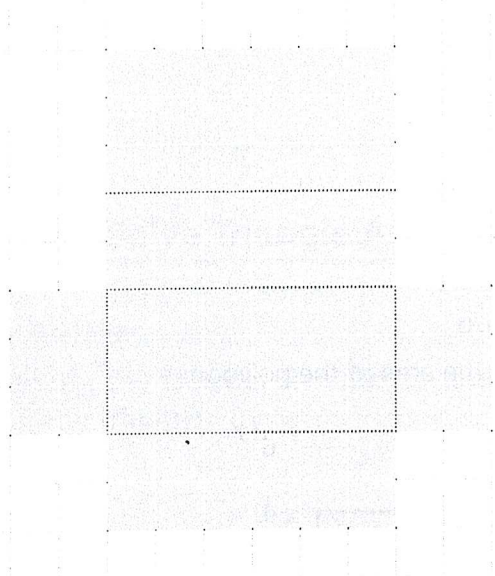
Example

Classify the solid figure and draw a net to represent it.



This figure has two congruent parallel bases, so it is a prism. The bases are rectangles, so it is a **rectangular prism**.

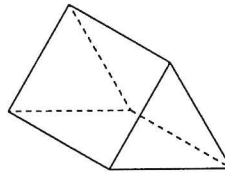
Net of rectangular prism:



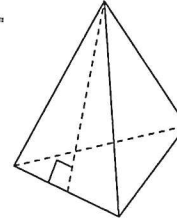
Practice

In 1 and 2, classify the solid figures.

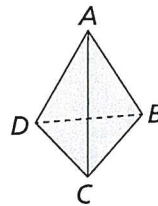
1.



2.

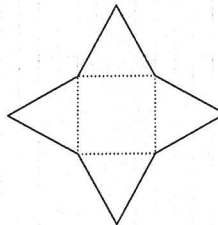


3. Draw a net of the pyramid shown.

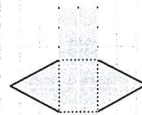


In 4 and 5, identify each solid from its net.

4.



5.



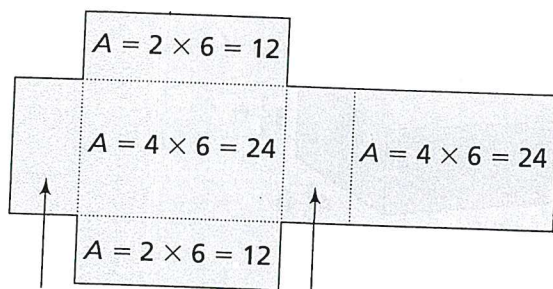
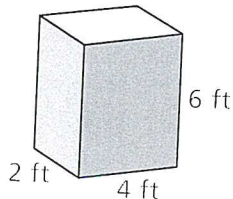
LESSON 7-6 Find Surface Areas of Prisms

Quick Review

You can use a net or a formula to find the surface area of a prism.

Example

Find the surface area.

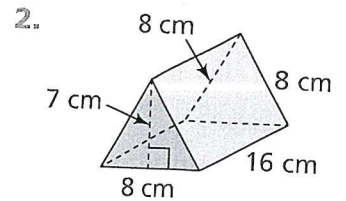
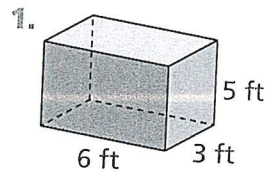


$$A = 2 \times 4 = 8 \quad A = 2 \times 4 = 8$$

$$SA = 2(8) + 2(12) + 2(24) = 88 \text{ ft}^2$$

Practice

Find the surface area of each prism.



3. Cube

$$s = 9.4 \text{ m}$$

4. Cube

$$s = 7 \text{ cm}$$

5. Rectangular prism

$$\ell = 12 \text{ in.}$$

$$w = 7 \text{ in.}$$

$$h = 3 \text{ in.}$$

6. Rectangular prism

$$\ell = 5 \text{ cm}$$

$$w = 6 \text{ cm}$$

$$h = 7 \text{ cm}$$

LESSON 7-7 Find Surface Areas of Pyramids

Quick Review

You can use a net or a formula to find the surface area of a pyramid.

Example

Find the surface area.

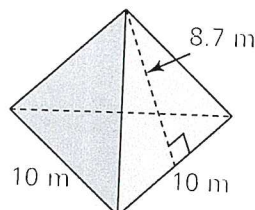
Area of one triangle:

$$T = \frac{1}{2} \times 10 \times 8.7 = 43.5$$

$$SA = 4T$$

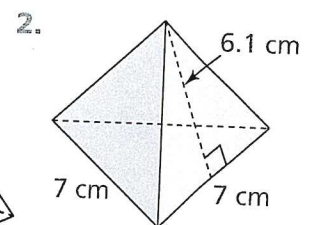
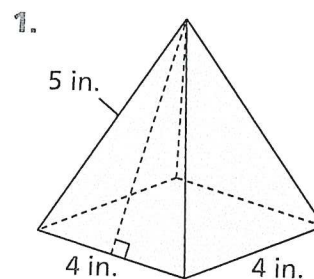
$$= 4 \times 43.5$$

$$= 174$$



Practice

In 1 and 2, find the surface area of each pyramid.



3. Each side of the base of a square pyramid is 10 ft and the height of each triangular face is 7 ft. Find the surface area of the pyramid.



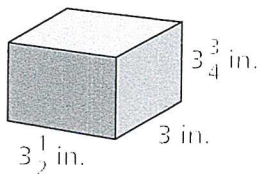
Quick Review

The volume of a rectangular prism is equal to the area of the base multiplied by the height.

Example

Find the volume of the rectangular prism.

STEP 1 Find the number of small $\frac{1}{4}$ -in. cubes that will fill the prism.



14 small $\frac{1}{4}$ -in. cubes fit along the $3\frac{1}{2}$ in. side.

12 small $\frac{1}{4}$ -in. cubes fit along the 3 in. side.

15 small $\frac{1}{4}$ -in. cubes fit along the $3\frac{3}{4}$ in. side.

$14 \cdot 12 \cdot 15 = 2,520$ small $\frac{1}{4}$ -in. cubes fill the prism.

STEP 2 Find the volume of each small $\frac{1}{4}$ -in. cube.

$$V = \ell wh = \frac{1}{4} \text{ in.} \cdot \frac{1}{4} \text{ in.} \cdot \frac{1}{4} \text{ in.} = \frac{1}{64} \text{ in.}^3$$

STEP 3 Find the volume of the prism.

$$2,520 \cdot \frac{1}{64} \text{ in.}^3 = 39\frac{3}{8} \text{ in.}^3$$

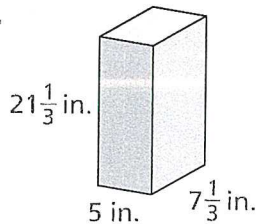
You can also use a formula.

$$V = \ell wh = 3\frac{1}{2} \text{ in.} \times 3 \text{ in.} \times 3\frac{3}{4} \text{ in.} = 39\frac{3}{8} \text{ in.}^3$$

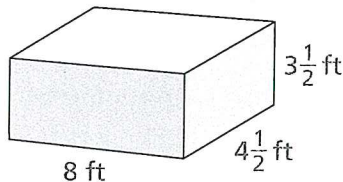
Practice

Find the volume of each rectangular prism.

1.



2.



3.

