Interactive Classroom

Glencoe McGraw-Hill

Pre-Algebra

Chapter 11

Three-Dimensional Figures

Click the mouse button or press the space bar to continue.

Chapter Menu

Lesson Menu

Main Ideas

- Identify three-dimensional figures.
- Draw various views of three-dimensional figures.

New Vocabulary

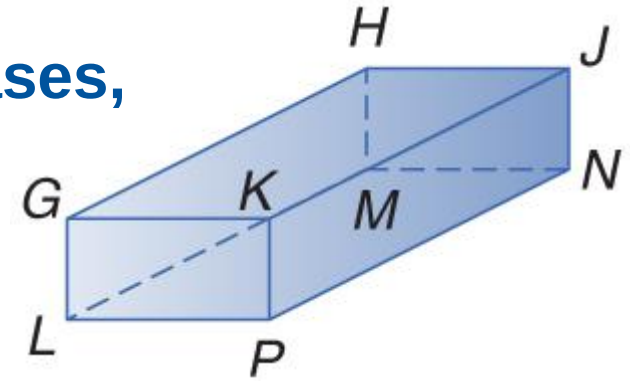
- plane
- solid
- polyhedron
- edge
- vertex
- face
- prism
- base
- pyramid
- cylinder
- cone

CONCEPT SUMMARY — Polyhedrons

Polyhedron	triangular prism	rectangular prism	triangular pyramid	rectangular pyramid
Number of Bases	2	2	1	1
Polygon Base	triangle	rectangle	triangle	rectangle
Figure				

EXAMPLE 1 Identify Solids

A. Identify the solid. Name the bases, faces, edges, and vertices.



Answer: This figure has two parallel congruent bases that are rectangles, *GHJK* and *LMNP*, so it is a rectangular prism.

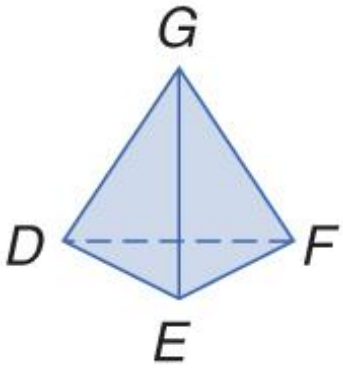
faces: *GHJK*, *LMNP*, *GHML*, *HJNM*, *JKPN*, *GKPL*

edges: $\overline{GH}$, $\overline{HJ}$, $\overline{JK}$, $\overline{GK}$, $\overline{LM}$, $\overline{MN}$, $\overline{NP}$, $\overline{LP}$, $\overline{GL}$, $\overline{HM}$, $\overline{JN}$, $\overline{KP}$

vertices: *G*, *H*, *J*, *K*, *L*, *M*, *N*, *P*

EXAMPLE 1 Identify Solids

B. Identify the solid. Name the bases, faces, edges, and vertices.



Answer: This figure has one triangular base, *DEF*, so it is a triangular pyramid.

faces: *DEF*, *DEG*, *DFG*, *EFG*

edges: $\overline{DE}$, $\overline{DF}$, $\overline{DG}$, $\overline{EF}$, $\overline{EG}$, $\overline{FG}$

vertices: *D*, *E*, *F*, *G*

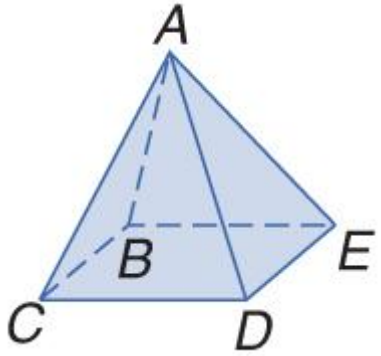
EXAMPLE Identify Solids

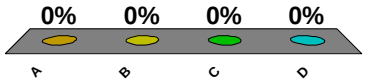
1 **C. Identify the solid. Name the bases, faces, edges, and vertices.**

Answer: The solid has two parallel circular bases. So, it is a cylinder: bases *A* and *B*.

CHECK Your Progress

1 **A. Identify the solid. Name the bases, faces, edges, and vertices.**





A. rectangular pyramid; base: $BCDE$; faces: $ABC, ACD, ADE, AEB, BCDE$; edges: $\overline{AB}, \overline{AC}, \overline{AD}, \overline{AE}, \overline{BC}, \overline{CD}, \overline{DE}, \overline{EB}$; vertices: A, B, C, D, E

B. rectangular pyramid; base: $BCDE$; faces: $ABC, ACD, ADE, AEB, BCDE$; edges: $\overline{AB}, \overline{AC}, \overline{AD}, \overline{AE}, \overline{BC}, \overline{CD}, \overline{DE}, \overline{EB}$; vertices: A, B, C, D, E

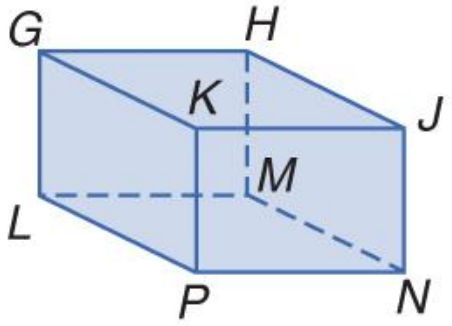
C. triangular pyramid; base: $BCDE$; faces: ABC, ACD, ADE, AEB; edges: $\overline{AB}, \overline{AC}, \overline{AD}, \overline{AE}$; vertices: A, B, C, D, E

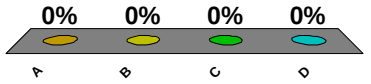
D. rectangular pyramid; base: $BCDE$; faces: ABC, ACD, ADE, AEB; edges: $\overline{AB}, \overline{AC}, \overline{AD}, \overline{AE}$; vertices: A, B, C, D, E

CheckPoint

CHECK Your Progress

1 **B. Identify the solid. Name the bases, faces, edges, and vertices.**





A. rectangular pyramid; bases: $GHJK, LMNP$; faces: $GHJK, LMNP, GHML, HJNM, JKPN, GKPL$; edges: $\overline{GH}, \overline{HJ}, \overline{JK}, \overline{GK}, \overline{LM}, \overline{MN}, \overline{NP}, \overline{LP}, \overline{GL}, \overline{HM}, \overline{JN}, \overline{KP}$; vertices: G, H, J, K, L, M, N, P

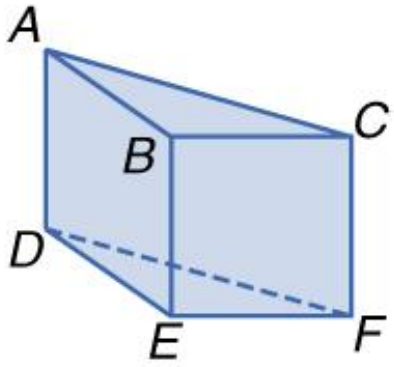
B. rectangular prism; bases: $GHJK, LMNP$; faces: $GHML, HJNM, JKPN, GKPL$; edges: $\overline{GH}, \overline{HJ}, \overline{JK}, \overline{GK}, \overline{MN}, \overline{NP}, \overline{LP}, \overline{LM}$; vertices: G, H, J, K, L, M, N, P

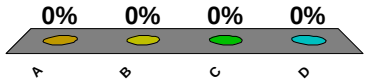
C. triangular prism; bases: $GHJK, LMNP$; faces: $GHML, HJNM, JKPN, GKPL$; edges: $\overline{GH}, \overline{HJ}, \overline{JK}, \overline{GK}, \overline{MN}, \overline{NP}, \overline{LP}, \overline{LM}$; vertices: G, H, J, K, L, M, N, P

D. rectangular prism; bases: $GHJK, LMNP$; faces: $GHJK, LMNP, GHML, HJNM, JKPN, GKPL$; edges: $\overline{GH}, \overline{HJ}, \overline{JK}, \overline{GK}, \overline{LM}, \overline{MN}, \overline{NP}, \overline{LP}, \overline{GL}, \overline{HM}, \overline{JN}, \overline{KP}$; vertices: G, H, J, K, L, M, N, P

CHECK Your Progress

1 **C. Identify the solid. Name the bases, faces, edges, and vertices.**





A. triangular pyramid; bases: ABC, DEF; faces: $ABC, ABED, ACFD, BCFE, DEF$; edges: $\overline{AB}, \overline{AC}, \overline{AD}, \overline{BC}, \overline{BE}, \overline{CF}, \overline{DE}, \overline{DF}, \overline{EF}$; vertices: A, B, C, D, E, F

B. triangular prism; bases: ABC, DEF; faces: $ABC, ABED, ACFD, BCFE, DEF$; edges: $\overline{AB}, \overline{AC}, \overline{AD}, \overline{BC}, \overline{BE}, \overline{CF}, \overline{DE}, \overline{DF}, \overline{EF}$; vertices: A, B, C, D, E, F

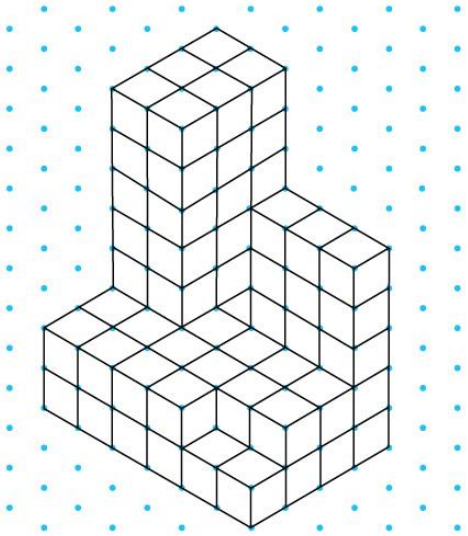
C. rectangular prism; bases: ABC, DEF; faces: $ABC, ABED, ACFD, BCFE, DEF$; edges: $\overline{AB}, \overline{AC}, \overline{BC}, \overline{DE}, \overline{EF}$; vertices: A, B, C, D, E, F

D. triangular prism; bases: ABC, DEF; faces: $ABED, ACFD, BCFE$; edges: $\overline{AB}, \overline{AC}, \overline{BC}, \overline{DE}, \overline{DF}, \overline{EF}$; vertices: A, B, C, D, E, F

CheckPoint

Real-World EXAMPLE

2 **A. ARCHITECTURE** **An architect's sketch shows the plans for a new skyscraper. Each unit on the drawing represents 80 feet. Draw a top view and find the area of the ground floor.**



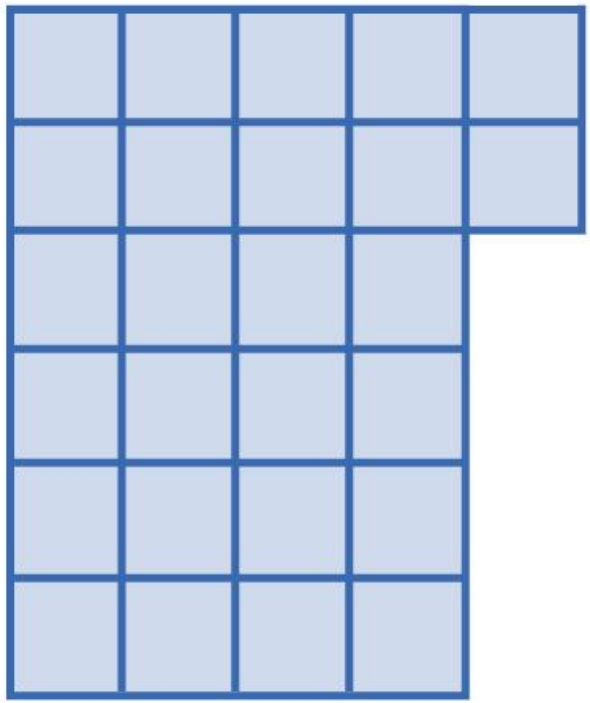
The drawing is two rectangles, a 4 × 6 and a 2 × 1, so the actual dimensions are
4(80) × 6(80) and 2(80) × 1(80) or
320 feet × 480 feet and 160 feet × 80 feet.

Real-World EXAMPLE

2 To find the area, add the areas of the two rectangles.

$A = 320 \bullet 480 + 160 \bullet 80$ or $166{,}400\ ft^2$

Answer: The area of the ground floor is 166,400 square feet.



Real-World EXAMPLE

2 B. Draw a top-count view of the building.

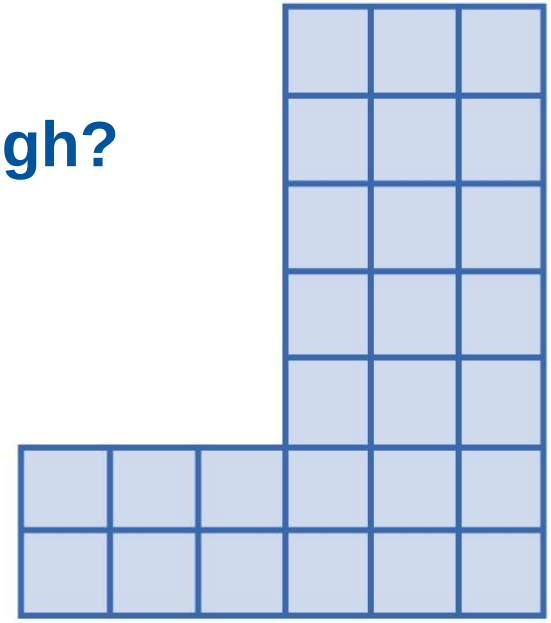
Using the top view from part A, write the number of levels for each unit of the building.

Answer:

2	2	7	7	7
2	2	7	7	7
2	2	2	2	
2	2	2	5	
1	2	2	5	
1	2	2	5	

Real-World EXAMPLE

2 **C. How many floors are in the skyscraper if each floor is 16 feet high?**



You can see from the side view and top-count view that the height of the building is 7 units.

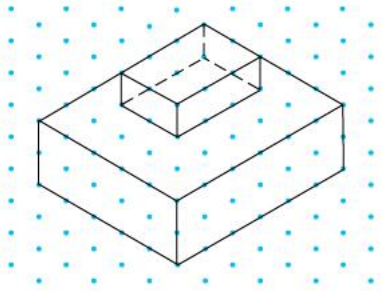
total height: 7 units × 80 feet per unit = 560 feet

number of floors: 560 feet ÷ 16 feet per floor = 35 floors.

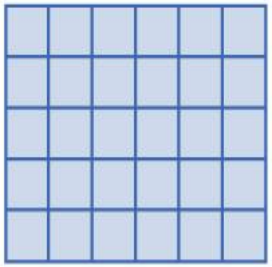
Answer: 35 floors

CHECK Your Progress

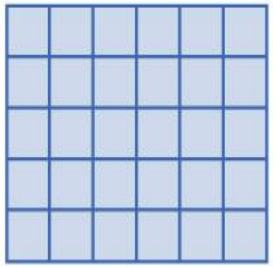
1 **A. ARCHITECTURE** An architect's sketch shows the plans for a new office building. Find the area of the ground floor if each unit represents 75 feet.



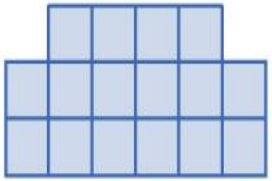
A. 2,250 ft^2



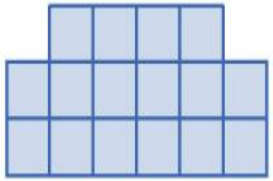
B. 168,750 ft^2

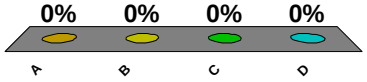


C. 90,000 ft^2



D. 202,500 ft^2

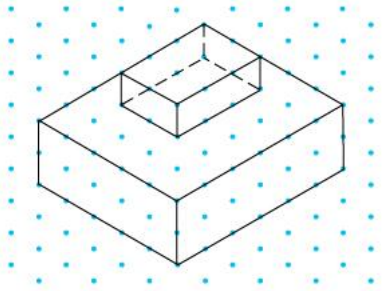




CheckPoint

CHECK Your Progress

1 **B. ARCHITECTURE** An architect's sketch shows the plans for a new office building. Draw a top-count view of the building.



A.

2	2	2	2	2	2
2	2	3	3	3	2
2	2	3	3	3	2
2	2	2	2	2	2
2	2	2	2	2	2

B.

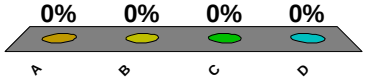
		2	2	2	
5	5	5	5	5	5
5	5	5	5	5	5

C.

1	1	1	1	1	1
1	1	2	2	2	1
1	1	2	2	2	1
1	1	1	1	1	1
1	1	1	1	1	1

D.

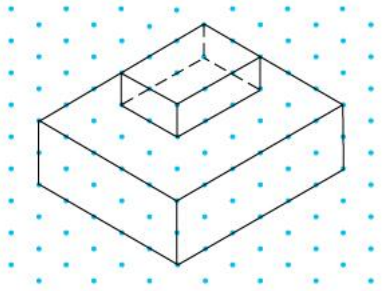
		3	3	3	
2	2	3	3	3	2
2	2	3	3	3	2



CheckPoint

CHECK Your Progress

1 **C. ARCHITECTURE** An architect's sketch shows the plans for a new office building. How many floors are in the office building if each floor is 15 feet high?

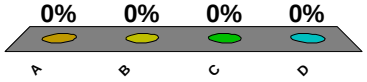


A. 3 floors

B. 10 floors

C. 15 floors

D. 25 floors



CheckPoint

End of the Lesson

Click the mouse button to return to the Chapter Menu.

Lesson Menu

Main Ideas

- Find volumes of prisms.
- Find volumes of circular cylinders.

New Vocabulary

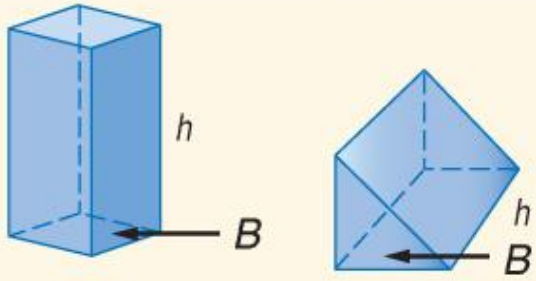
- volume

KEY CONCEPT — Volume of a Prism

Words The volume V of a prism is the area of the base B times the height h.

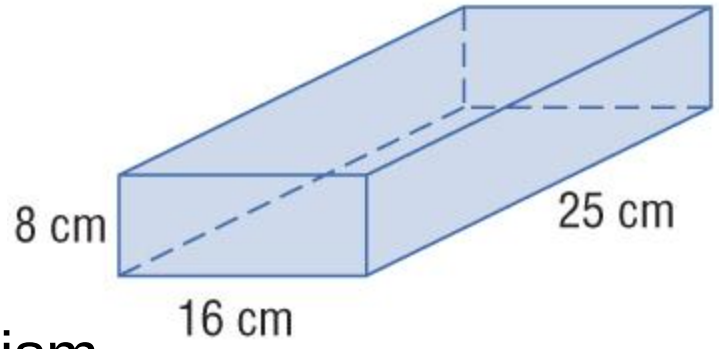
Symbols $V = Bh$

Models



EXAMPLE Volume of a Rectangular Prism

1 **Find the volume of the prism.**

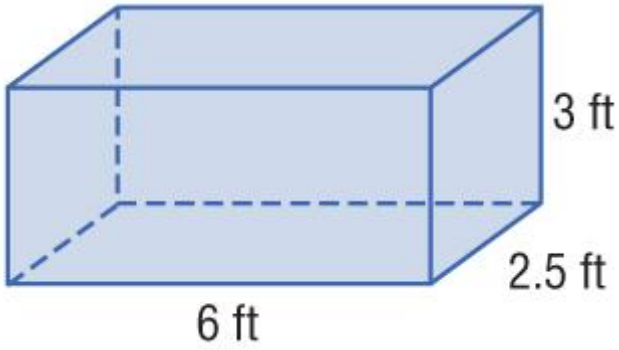


$V = Bh$	Formula for volume of a prism
$V = (\ell \bullet w)h$	The base is a rectangle, so $B = \ell \bullet w$.
$V = (25 \bullet 16)8$	$\ell = 25$, $w = 16$, $h = 8$
$V = 3200$	Simplify.

Answer: The volume is 3200 cubic centimeters.

CHECK Your Progress

1 Find the volume of the prism.

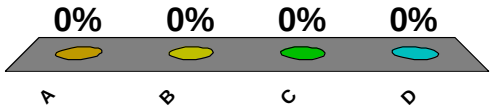


A. 11.5 ft^3

B. 22.5 ft^3

C. 45 ft^3

D. 81 ft^3



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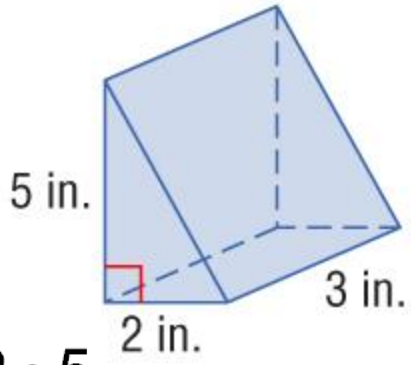
EXAMPLE Volume of a Triangular Prism

2 **Find the volume of the triangular prism.**



$V = Bh$ Formula for volume of a prism

$V = \left(\frac{1}{2} \cdot 2 \cdot 5\right)h$ B = area of base or $\frac{1}{2} \cdot 2 \cdot 5$

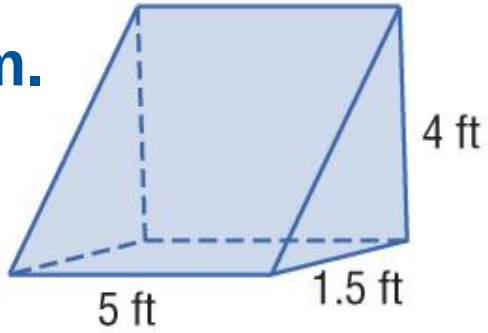
$V = \left(\frac{1}{2} \cdot 2 \cdot 5\right)3$ The height of the prism is 3 in.

$V = 15$ Simplify.

Answer: The answer is 15 cubic inches.

CHECK Your Progress

2 Find the volume of the triangular prism.



A. $33.5\ ft^3$

B. $30\ ft^3$

C. $15\ ft^3$

D. $10.5\ ft^3$

0%

A B C D

CheckPoint

Real-World EXAMPLE

3 **BAKING** **Cake batter is poured into a pan that is a rectangular prism whose base is an 8-inch square. If the cake batter occupies 192 cubic inches, what will be the height of the batter?**

$V = Bh$	Formula for volume of a prism
$V = \ell \bullet w \bullet h$	Replace B with $\ell \bullet w$.
$192 = 8 \bullet 8 \bullet h$	Replace V with 192, ℓ with 8, and w with 8.
$192 = 64h$	Simplify.
$3 = h$	Divide each side by 64.

Answer: The height of the batter is 3 inches.

CHECK Your Progress

3 **SWIMMING POOLS** A swimming pool is filled with 960 cubic feet of water. The pool is a rectangular prism 20 feet long and 12 feet wide and is the same depth throughout. Find the depth of the water.

A. 2 feet

0%

B. 4 feet

C. 8 feet

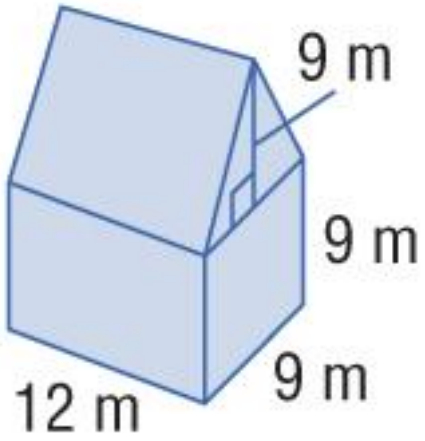
D. 30 feet

A B C D

Standardized Test EXAMPLE

4 **Find the volume of the solid.**

A 262 m^3
B 972 m^3
C 918 m^3
D 1458 m^3



Read the Test Item

The solid is made up of a rectangular prism and a triangular prism. The *volume of the solid* is the sum of both volumes.

Solve

V(solid) = V(rectangular prism) + V(triangular prism)

Standardized Test EXAMPLE

4 $V(\text{solid}) = \ell \bullet w \bullet h + Bh$ Volume formulas

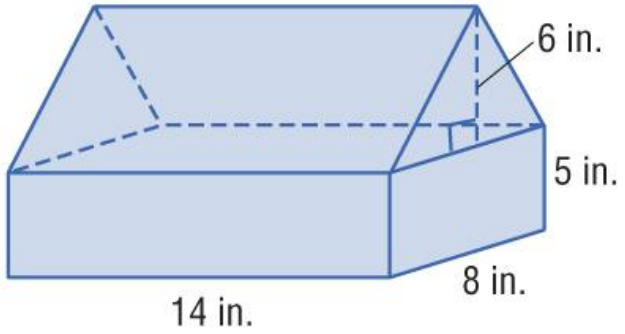
$= 12 \bullet 9 \bullet 9 + \left(\frac{1}{2} \bullet 9 \bullet 9\right) \bullet 12$ Substitute.

$= 972 + 486 \text{ or } 1458 m^3$ Simplify.

Answer: The answer is D.

CHECK Your Progress

4 Find the volume of the solid.

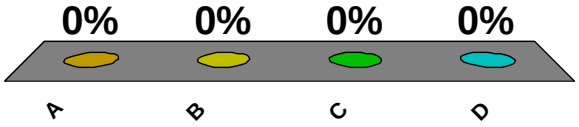


A. 1492 in^3

B. 932 in^3

C. 896 in^3

D. 718 in^3



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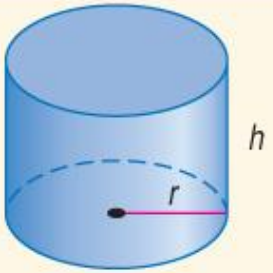
KEY CONCEPT — Volume of a Cylinder

Words The volume V of a cylinder with radius r is the area of the base B times the height h.

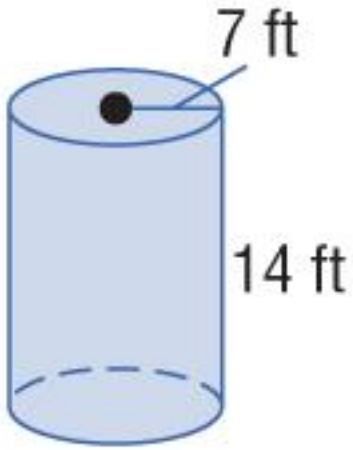
Symbols $V = Bh$, where $B = \pi r^2$ or $V = \pi r^2 h$

Model



EXAMPLE Volume of a Cylinder

5 **A. Find the volume of the cylinder. Round to the nearest tenth.**



Estimate $3 \bullet 7^2 \bullet 14 = 2058$

$V = Bh$	Formula for volume
$V = \pi r^2 h$	Replace B with πr^2.
$V = \pi \bullet 7^2 \bullet 14$	Replace r with 7 and h with 14.
$V \approx 2155.1$	Compare to the estimate.

Answer: The volume is about 2155.1 cubic feet.

EXAMPLE 5 Volume of a Cylinder

B. Find the volume of the cylinder. Round to the nearest tenth. diameter of base 10 m, height 2 m

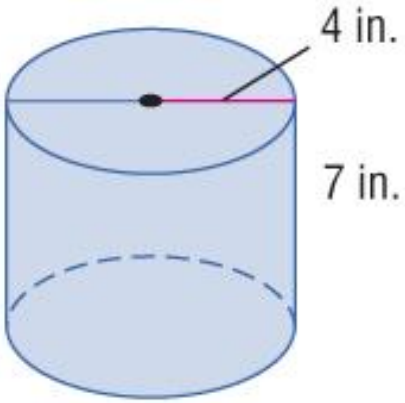
Since the diameter is 10 m, the radius is 5 m.

$V = \pi r^2 h$	Formula for volume of a cylinder
$V = \pi \bullet 5^2 \bullet 2$	Replace r with 5 and h with 2.
$V \approx 157.1$	Simplify.

Answer: The volume is about 157.1 cubic meters.

CHECK Your Progress

5 **A. Find the volume of the cylinder. Round to the nearest tenth.**

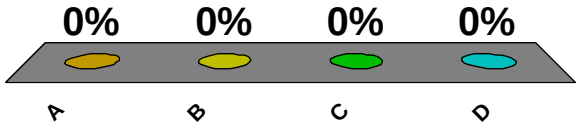


A. 175.9 in^3

B. 336 in^3

C. 351.9 in^3

D. 615.8 in^3



CheckPoint

CHECK Your Progress

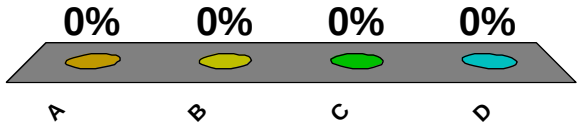
5 **B.** Find the volume of the cylinder. Round to the nearest tenth. diameter of base 8 cm, height 6 cm

A. 1206.4 cm^3

B. 301.6 cm^3

C. 226.2 cm^3

D. 150.8 cm^3



CheckPoint

End of the Lesson

Click the mouse button to return to the Chapter Menu.

Lesson Menu

Main Ideas

- Find volumes of pyramids.
- Find volumes of cones and spheres.

New Vocabulary

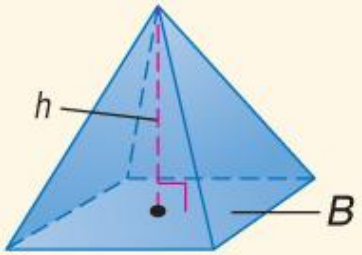
- sphere

KEY CONCEPT — Volume of a Pyramid

Words The volume V of a pyramid is one-third the area of the base B times the height h.

Symbols $V = \frac{1}{3}Bh$

Model



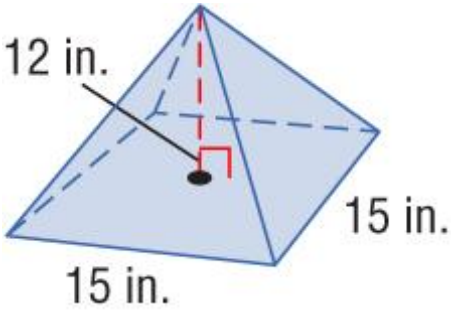
Concepts in MOtion

Animation: Volume of Pyramids, Cones, and Spheres

Click here to view!

EXAMPLE Volume of a Pyramid

1 **Find the volume of the pyramid. Round to the nearest tenth if necessary.**



$V = \frac{1}{3}Bh$ Formula for volume of a pyramid

$V = \frac{1}{3}(15 \bullet 15)h$ The base is a square, so $B = 15 \bullet 15$.

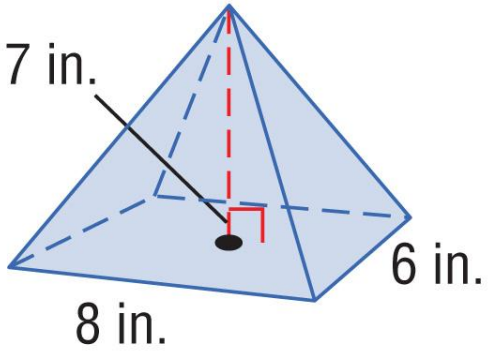
$V = \frac{1}{3}(15 \bullet 15)12$ The height of the pyramid is 12 inches.

$V = 900$ Simplify.

Answer: The volume is 900 cubic inches.

CHECK Your Progress

1 **Find the volume of the pyramid. Round to the nearest tenth if necessary.**

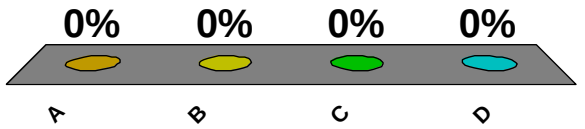


A. 112 in^3

B. 168 in^3

C. 336 in^3

D. 448 in^3



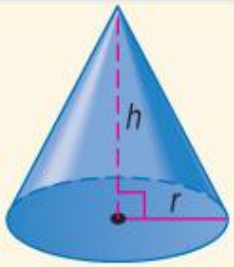
CheckPoint

KEY CONCEPT — Volume of a Cone

Words The volume V of a cone with radius r is one-third the area of the base B times the height h.

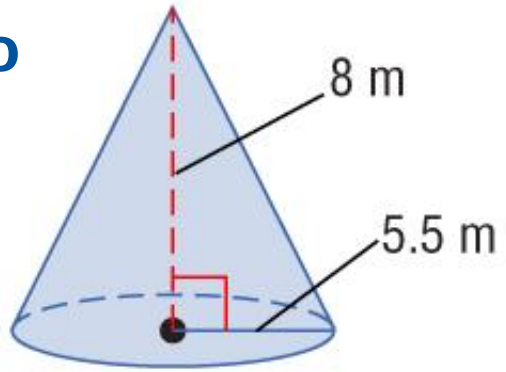
Symbols $V = \frac{1}{3}Bh$ or $V = \frac{1}{3}\pi r^2 h$, where $B = \pi r^2$

Model



EXAMPLE Volume of a Cone

2 **Find the volume of the cone. Round to the nearest tenth.**



$V = \frac{1}{3}\pi r^2 h$ Formula for volume of a cone

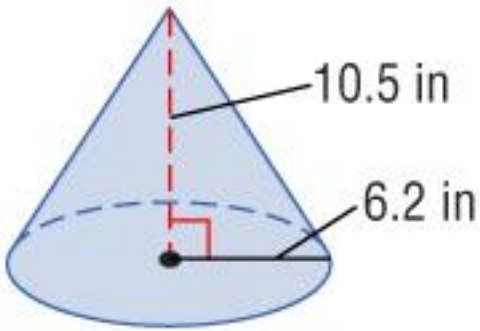
$V = \frac{1}{3} \bullet (5 \bullet 5)^2 \bullet 8$ Replace r with 5.5 and h with 8.

$V \approx 253.4$ Simplify.

Answer: The volume is about 253.4 cubic meters.

CHECK Your Progress

2 Find the volume of the cone. Round to the nearest tenth.



A. 40.3 in^3

B. 422.7 in^3

C. 715.8 in^3

D. 1690.7 in^3

0%

A B C D

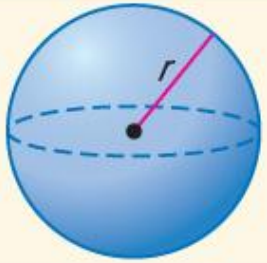
CheckPoint

KEY CONCEPT — Volume of a Sphere

Words The volume V of a sphere is four-thirds times pi times the radius cubed.

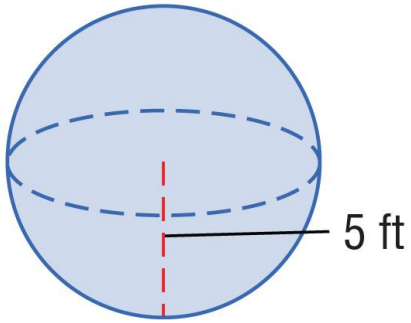
Symbols $V = \frac{4}{3}\pi r^3$

Model



EXAMPLE Volume of a Sphere

3 **Find the volume of the sphere. Round to the nearest tenth.**



$$V = \frac{4}{3}\pi r^3$$ Formula for the volume of a sphere

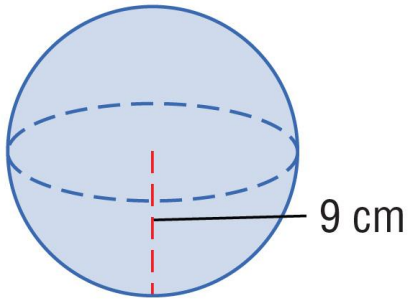
$$= \frac{4}{3} \bullet \pi \bullet 5^3$$ Replace r with 5.

$$\approx 523.6 \text{ ft}^3$$ Simplify.

Answer: The volume of the sphere is about 523.6 cubic feet.

CHECK Your Progress

3 Find the volume of the sphere. Round to the nearest tenth.



A. 339.3 cm^3

B. 763.4 cm^3

C. 3053.6 cm^3

D. 9160.9 cm^3

0%

A B C D

CheckPoint

Real-World EXAMPLE

4 **A. LANDSCAPING** **When mulch was dumped from a truck, it formed a cone-shaped mound with a diameter of 15 feet and a height of 8 feet. What is the volume of the mulch?**

Estimate $\frac{1}{3} \cdot 3 \cdot 8^2 \cdot 8 = 512$

$V = \frac{1}{3}\pi r^2 h$ Formula for the volume of a cone

$V = \frac{1}{3} \cdot \pi \cdot (7.5)^2 \cdot 8$ Since $d = 15$, replace r with 7.5. Replace h with 8.

$V \approx 471$ Simplify.

Real-World EXAMPLE

4 **Answer:** The volume of the mulch is about 471 cubic feet.

Real-World EXAMPLE

4 **B. LANDSCAPING** **When mulch was dumped from a truck, it formed a cone-shaped mound with a diameter of 15 feet and a height of 8 feet. A person shoveling the mulch removes it at a rate of 1.5 ft^3 every minute. How long does it take for the pile of mulch to be completely removed?**

To determine how long it takes for the pile of mulch to be completely removed, divide the volume of the pile of mulch by the rate of removal.

$$\frac{471\ ft^3}{1.5\ \frac{ft^3}{min}} = 314\ min$$

Real-World EXAMPLE

4 $314 \text{ min} \cdot \dfrac{1 \text{ hr}}{60 \text{ min}} = 5.2 \text{ hrs}$

Answer: It will take about 5.2 hours for the pile of mulch to be completely removed.

CHECK Your Progress

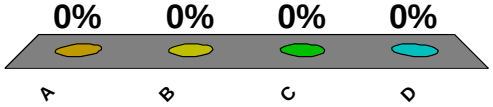
4 **A. PLAYGROUND** A load of wood chips for a playground was dumped and formed a cone-shaped mound with a diameter of 10 feet and a height of 6 feet. What is the volume of the wood chips? Round to the nearest tenth.

A. $628.3\ ft^3$

B. $471.2\ ft^3$

C. $377.0\ ft^3$

D. $157.1\ ft^3$



CheckPoint

CHECK Your Progress

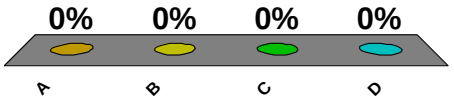
4 **B. PLAYGROUND** A load of wood chips for a playground was dumped and formed a cone-shaped mound with a diameter of 10 feet and a height of 6 feet. A person shoveling the wood chips removes them at a rate of 2 ft^3 every minute. How long does it take for the load of wood chips to be completely removed?

A. 1.3 hours

B. 3.1 hours

C. 3.9 hours

D. 5.2 hours



CheckPoint

End of the Lesson

Click the mouse button to return to the Chapter Menu.

Lesson Menu

Main Ideas

- Find lateral area and surface areas of prisms.
- Find lateral area and surface areas of cylinders.

New Vocabulary

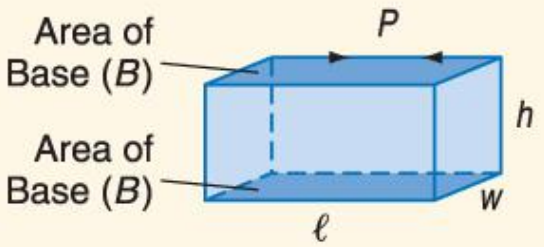
- net
- lateral face
- lateral area
- surface area

KEY CONCEPT — Lateral Area and Surface Area of Prisms

Words The lateral area L of a prism is the perimeter of the base P times the height h.

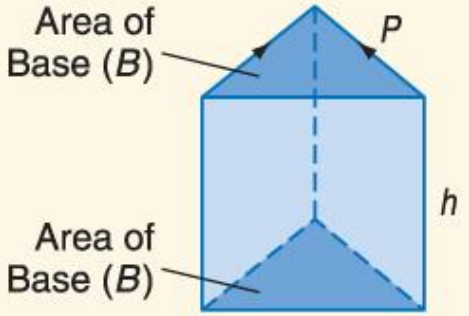
Symbols $L = Ph$

Model



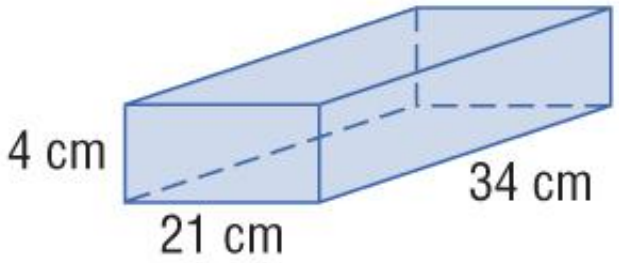
Words The surface area S of a prism is the lateral area L plus the area of the two bases $2B$.

Symbols $S = L + 2B$ or $S = Ph + 2B$



EXAMPLE Surface Area of Prisms

1 A. Find the lateral area and surface area of the prism.



Find the lateral area

$L = Ph$

$= (2\ell + 2w)(h)$

$= (2 \bullet 34 + 2 \bullet 21)(4)$

$= 440 \text{ cm}^2$

Find the surface area

$S = L + 2B$

$= L + 2\ell w$

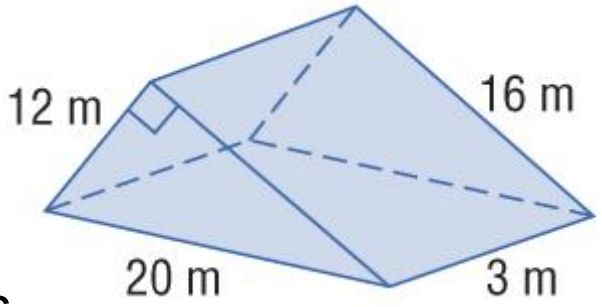
$= 440 + 2(34)(21)$

$= 1868 \text{ cm}^2$

Answer: The lateral area is 440 square centimeters. The surface area is 1868 square centimeters.

EXAMPLE 1 Surface Area of Prisms

B. Find the lateral area and surface area of the prism.



The lateral area is made up of bases that are *not* parallel.

$L = Ph$ Write the formula.

$= (12 + 16 + 20)(3)$ P is perimeter of the triangular base. h is the height of the prism.

$= 144 \text{ m}^2$ Simplify.

EXAMPLE Surface Area of Prisms

1 Find the surface area.

$S = L + 2B$ Write the formula.

$= L + 2\left(\frac{1}{2}bh\right)$ $B = \frac{1}{2}bh$ (area of triangle)

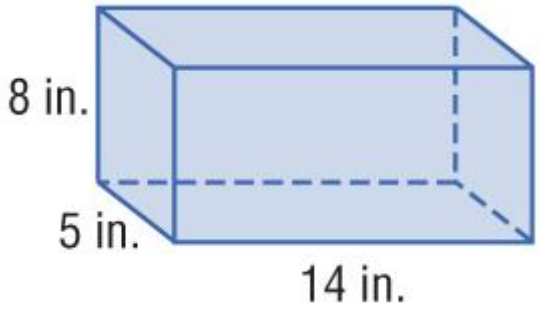
$= 144 + 2\left(\frac{1}{2} \cdot 12 \cdot 16\right)$ Substitution.

$= 336 \text{ m}^2$ Simplify.

Answer: The lateral area of the triangular prism is 144 square meters. The surface area of the triangular prism is 336 square meters.

CHECK Your Progress

1 **A. Find the lateral area and the surface area of the rectangular prism.**

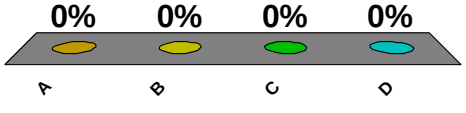


A. lateral area, 152 in^2; surface area, 292 in^2

B. lateral area, 182 in^2; surface area, 322 in^2

C. lateral area, 304 in^2; surface area, 444 in^2

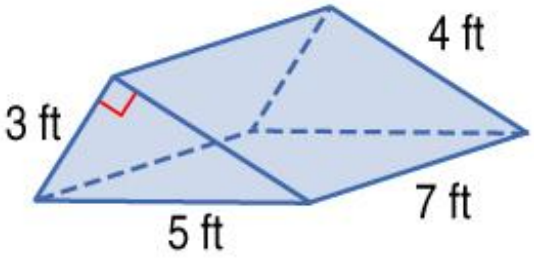
D. lateral area, 364 in^2; surface area, 560 in^2



CheckPoint

CHECK Your Progress

1 **B. Find the lateral area and the surface area of the triangular prism.**

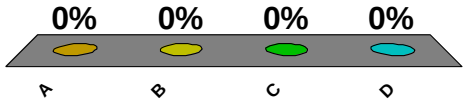


A. lateral area, 19 ft^2; surface area, 31 ft^2

B. lateral area, 61 ft^2; surface area, 96 ft^2

C. lateral area, 84 ft^2; surface area, 96 ft^2

D. lateral area, 96 ft^2; surface area, 108 ft^2



CheckPoint

KEY CONCEPT — Lateral Area and Surface Area of Cylinders

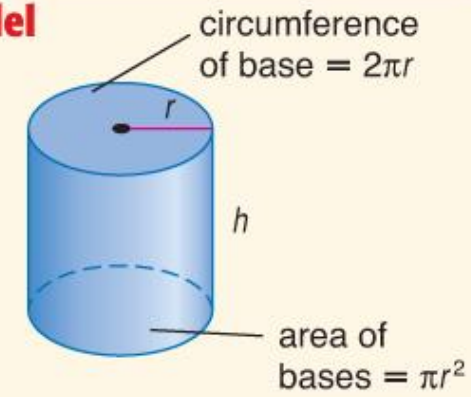
Words The lateral area L of a cylinder with radius r and height h is the circumference of the base ($2\pi r$) times the height h.

Symbols $L = 2\pi rh$

Words The surface area S of a cylinder is the lateral area L plus the area of the two bases ($2\pi r^2$).

Symbols $S = L + 2B$ or $S = 2\pi rh + 2\pi r^2$

Model

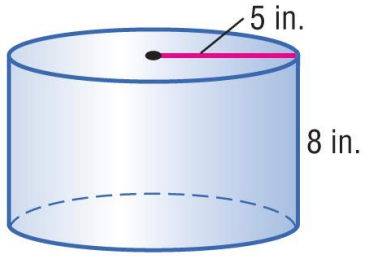


Concepts in MOtion

Interactive Lab:
Surface Area of a Cylinder

Click here to view!

EXAMPLE Surface Area of a Cylinder



2 **Find the lateral area and surface area of the cylinder. Round to the nearest tenth.**

Estimate $(2 \bullet 3 \bullet 5 \bullet 8) + (2 \bullet 5 \bullet 5^2)$ or $390\ m^2$

Find the lateral area

$L = 2\pi rh$

$= 2\pi(5)(8)$

$= 80\pi$ exact answer

$\approx 251.3\ m^2$ approximate answer

EXAMPLE Surface Area of a Cylinder

2 Find the surface area.

$S = L + 2\pi r^2$

$= 80\pi + 2\pi(5)^2$

$= 130\pi$ exact answer

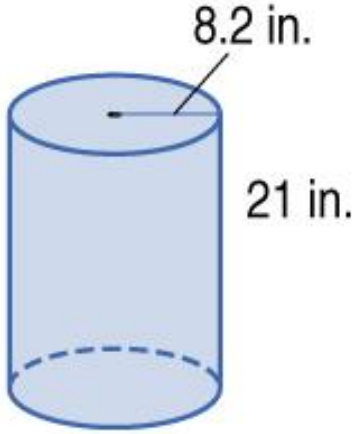
$= 408.4 \text{ m}^2$ approximate answer

How does your estimate compare to your answer?

Answer: The lateral area is about 251.3 square inches and the surface area is about 408.4 square inches.

CHECK Your Progress

2 Find the lateral area and the surface area of the cylinder. Round to the nearest tenth.

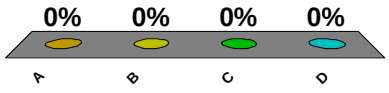


A. lateral area, 1082.0 in^2; surface area, 1504.4 in^2

B. lateral area, 1082.0 in^2; surface area, 3852.9 in^2

C. lateral area, 2163.9 in^2; surface area, 2586.4 in^2

D. lateral area, 4436.1 in^2; surface area, 4858.6 in^2



CheckPoint

Real-World EXAMPLE

3 **CEREALS** **A company packages its cereal in a rectangular prism that is 2.5 inches by 7 inches by 12 inches. It is considering packaging it in a cylinder-shaped container having a 6-inch diameter and a height of 7.5 inches. Which uses the least amount of packaging?**

Surface Area of Rectangular Prism Style

Lateral Area + Area of Bases

$$
\begin{aligned}
S &= L + 2B \\
&= Ph + 2\ell w \\
&= (2 \bullet 7 + 2 \bullet 2.5)(12) + 2(7)(2.5) \\
&= 263 \text{ in}^2
\end{aligned}
$$

Real-World EXAMPLE

3 Surface Area of Cylinder Style

	Lateral Area		Area of Bases
$S =$	L	$+$	$2B$
$=$	$2\pi rh$	$+$	$2\pi r^2$
$=$	$2\pi(3)(7.5)$	$+$	$2\pi(3)^2$
$=$	197.9 in^2		

Answer: Since $197.9 \text{ in}^2 < 263 \text{ in}^2$, the cylinder uses less packaging.

CHECK Your Progress

3 **CANDY** A candy company is deciding between two types of packaging for its gumballs. The first option is a rectangular prism that is 6 inches by 4 inches by 1.5 inches. The second option is a cylinder having a radius of 2 inches and a height of 5 inches. Which option requires less packaging?

A. The rectangular prism requires less packaging. 0%

B. The cylinder requires less packaging.

C. Both options require the same amount of packaging.

D. cannot be determined

A B C D

CheckPoint

End of the Lesson

Click the mouse button to return to the Chapter Menu.

Lesson Menu

Main Ideas

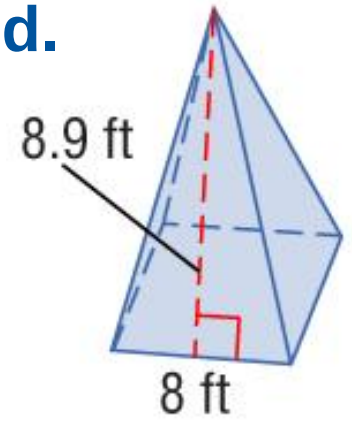
- Find surface areas of pyramids.
- Find surface areas of cones.

New Vocabulary

- slant height

EXAMPLE Surface Area of a Pyramid

1 **Find the surface area of the square pyramid.**



First find the lateral area. The lateral area of the pyramid is made up of four triangles.

Estimate $L = 4\left(\frac{1}{2}\right)(8)(9) = 144$

$L = 4\left(\frac{1}{2}\right)bh$ Area of 4 triangles

$= 4\left(\frac{1}{2}\right)(8)(8.9)$ Replace b with 8 and h with 8.9.

$= 142.4 \text{ ft}^2$ Simplify.

EXAMPLE Surface Area of a Pyramid

1 Then find the surface area. The base of the pyramid is a square.

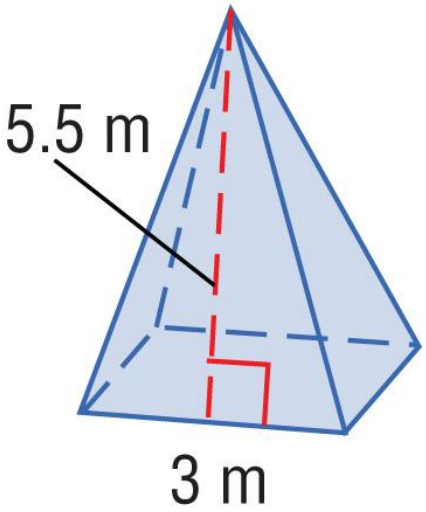
$S = L + B$	Write the formula.
$= L + s^2$	The area of a square is s^2.
$= 142.4 + 8^2$	Substitution
$= 206.4 \text{ ft}^2$	Simplify.

Is your answer reasonable?

Answer: The surface area of the square pyramid is 206.4 square feet.

CHECK Your Progress

1 **Find the surface area of the square pyramid.**

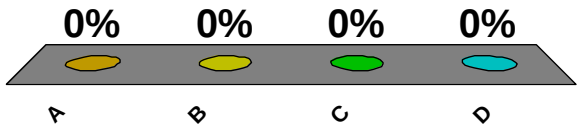


A. 16.5 m^2

B. 33 m^2

C. 42 m^2

D. 75 m^2



CheckPoint

Real-World EXAMPLE

2 CANOPIES **A canopy is in the shape of a square pyramid that is 3.4 meters on each side. The slant height is 2 meters. How much canvas is used for the canopy?**

Find the lateral area only, since there is no bottom to the canopy.

Estimate $L = 4\left(\frac{1}{2}\right)(3)(2) = 12$

$L = 4\left(\frac{1}{2}\right)bh$ Formula for area of 4 triangles

Real-World EXAMPLE

2

$= 4\left(\frac{1}{2}\right)(3.4)(2)$ Replace b with 3.4 and h with 2.

$= 13.6$ Simplify.

Answer: 13.6 square meters of canvas was used to cover the canopy. Compare your answer to the estimate.

CHECK Your Progress

2 **TENT** A tent is in the shape of a square pyramid that is 8 feet on each side. The slant height is 10 feet. Find the surface area of the tent.

A. 320 ft^2

B. 224 ft^2

C. 160 ft^2

D. 80 ft^2

0%

A B C D

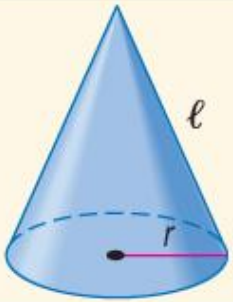
CheckPoint

KEY CONCEPT — Surface Area of a Cone

Words The surface area S of a cone with slant height ℓ and radius r is the lateral area plus the area of the base.

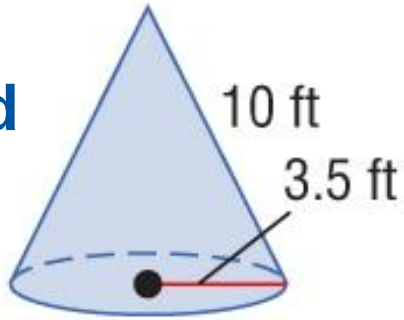
Symbols $S = L + B$ or $S = \pi r\ell + \pi r^2$

Model



EXAMPLE Surface Area of a Cone

3 **Find the surface area of the cone. Round to the nearest tenth.**

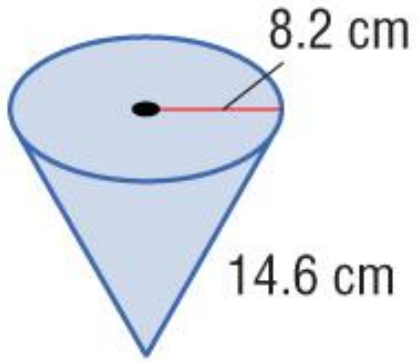


$S = \pi r\ell + \pi r^2$	Formula for surface area of a cone
$= \pi(3.5)(10) + \pi(3.5)^2$	Replace r with 3.5 and ℓ with 10.
≈ 148.4	Simplify.

Answer: The surface area of the cone is about 148.4 square feet.

CHECK Your Progress

3 Find the surface area of the cone. Round to the nearest tenth.



A. $376.1\ cm^2$

B. $587.4\ cm^2$

C. $963.5\ cm^2$

D. $1028.0\ cm^2$

0%

A B C D

End of the Lesson

Click the mouse button to return to the Chapter Menu.

Lesson Menu

Main Ideas

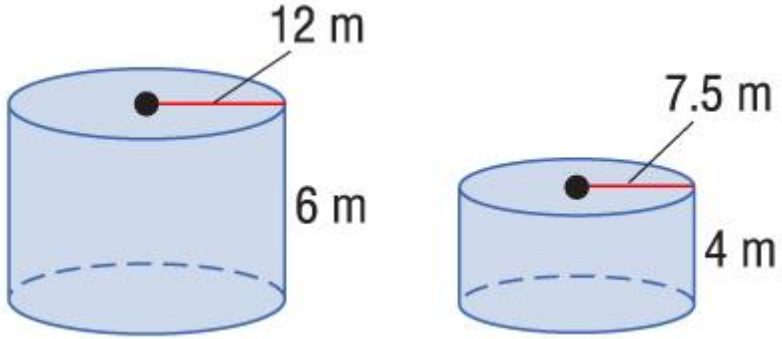
- Identify similar solids.
- Solve problems involving similar solids.

New Vocabulary

- similar solids

EXAMPLE 1 Identify Similar Solids

A. Determine whether the pair of solids is similar.



$\frac{12}{7.5} \stackrel{?}{=} \frac{6}{4}$ Write a proportion comparing radii and heights.

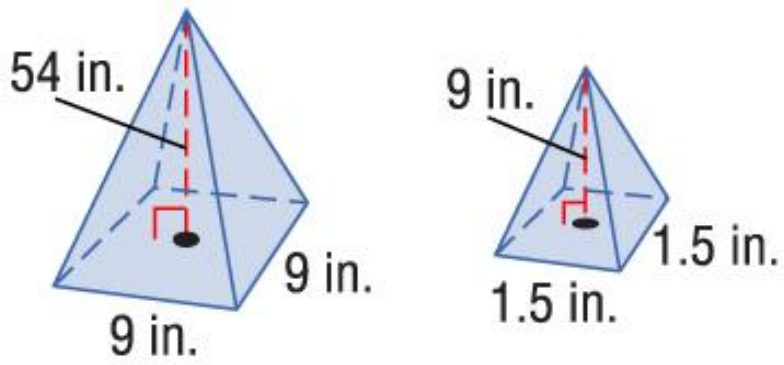
$12(4) \stackrel{?}{=} (7.5)(6)$ Find the cross products.

$48 \neq 45$ Simplify.

Answer: The radii and heights are not proportional, so the cylinders are not similar.

EXAMPLE 1 Identify Similar Solids

B. Determine whether the pair of solids is similar.



$$\frac{54}{9} \stackrel{?}{=} \frac{9}{1.5}$$

Write a proportion comparing corresponding edge lengths.

$$54(1.5) \stackrel{?}{=} 9(9)$$

Find the cross products.

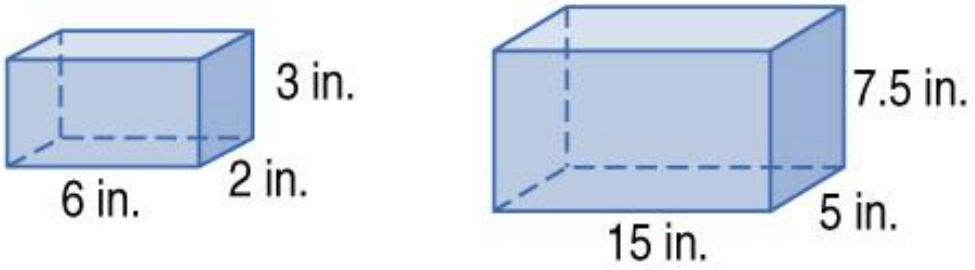
$$81 = 81$$

Simplify.

Answer: The corresponding measures are proportional, so the pyramids are similar.

CHECK Your Progress

1 **A. Determine whether the pair of solids is similar.**

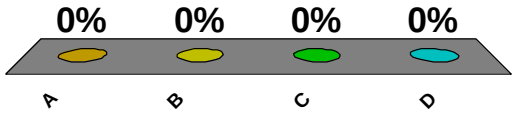


A. yes

B. no

C. They are congruent.

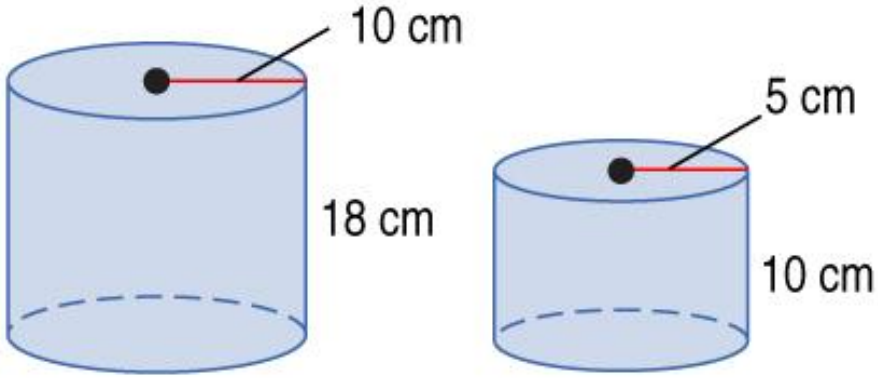
D. cannot be determined



CheckPoint

CHECK Your Progress

1 **B. Determine whether the pair of solids is similar.**

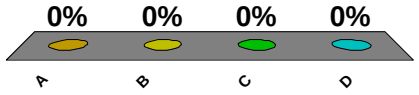


A. yes

B. no

C. They are congruent.

D. cannot be determined



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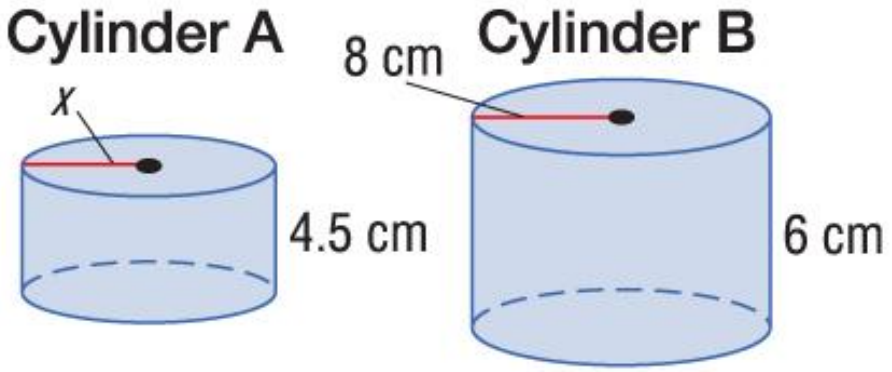
EXAMPLE Find Missing Measures

2 **The cylinders to the right are similar. Find the radius of cylinder A.**



$$\frac{\text{radius of cylinder A}}{\text{radius of cylinder B}} = \frac{\text{height of cylinder A}}{\text{height of cylinder B}}$$

$\frac{x}{8} = \frac{4.5}{6}$ Substitute the known values.

$6x = 8(4.5)$ Find the cross products.

EXAMPLE Find Missing Measures

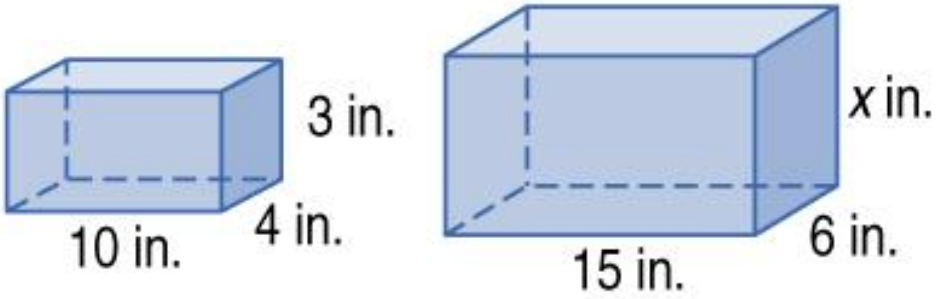
2 $6x = 36$ Simplify.

$x = 6$ Divide each side by 6.

Answer: The radius of cylinder A is 6 centimeters.

CHECK Your Progress

2 The rectangular prisms below are similar. Find the height of prism B.



A. 0.4 in

B. 0.9 in

C. 2 in

D. 4.5 in

0%

A B C D

CheckPoint

KEY CONCEPT — Ratios of Similar Solids

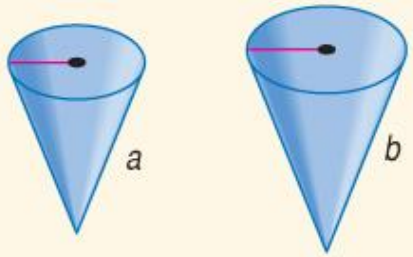
Words If two solids are similar with a scale factor of $\frac{a}{b}$, then the surface areas have a ratio of $\left(\frac{a}{b}\right)^2$ and the volumes have a ratio of $\left(\frac{a}{b}\right)^3$.

Symbols

$$\frac{\text{surface area of Solid A}}{\text{surface area of Solid B}} = \left(\frac{a}{b}\right)^2$$

$$\frac{\text{volume of Solid A}}{\text{volume of Solid B}} = \left(\frac{a}{b}\right)^3$$

Models



Solid A Solid B

EXAMPLE Find Surface Areas of Similar Solids

3 **A cylinder has a surface area of 245 square inches. If the dimensions are doubled, what is the surface area of the new cylinder?**

The cylinders are similar and the scale factor of the side lengths $\frac{a}{b}$ is $\frac{1}{2}$.

Therefore, surface areas of the rectangular prisms have a ratio of $\left(\frac{a}{b}\right)^2$ or $\left(\frac{1}{2}\right)^2$.

EXAMPLE Find Surface Areas of Similar Solids

3 Set up a proportion to find the surface area of the new cylinder.

$$\frac{\text{surface area of original cylinder}}{\text{surface area of new cylinder}} = \left(\frac{a}{b}\right)^2$$

Write a proportion.

$$\frac{245}{S} = \left(\frac{1}{2}\right)^2$$

Substitute known values. Let S = the surface area of the new cylinder.

EXAMPLE Find Surface Areas of Similar Solids

3

$$\frac{245}{S} = \frac{1}{4} \qquad \left(\frac{1}{2}\right)^2 = \frac{1}{2} \bullet \frac{1}{2} \text{ or } \frac{1}{4}$$

$4 \bullet 245 = S \bullet 1$ Find the cross products.

$980 = S$ Multiply.

Answer: The surface area of the new cylinder is 980 square inches.

CHECK Your Progress

3 A cube has a surface area of 294 square centimeters. If the dimensions are doubled, what is the surface area of the new cube?

A. 73.5 cm^2

0%

B. 392 cm^2

C. 588 cm^2

A B C D

D. 1176 cm^2

Real-World EXAMPLE

4 **DOLLHOUSE** **A small model of a fish tank for Eva's dollhouse is built on a scale of 1 cm to 5 in. and has a volume of 24 cm^3. What is the volume of the actual fish tank?**

Explore You know the scale factor $\frac{a}{b}$ is $\frac{1}{5}$ and the volume of the model fish tank is 24 cm^3.

Real-World EXAMPLE

4 Plan Since the volumes have a ratio of $\left(\frac{a}{b}\right)^3$ and $\frac{a}{b} = \frac{1}{5}$, replace a with 1 and b with 5 in $\left(\frac{a}{b}\right)^3$.

Solve

$$\frac{\text{volume of model}}{\text{volume of tank}} = \left(\frac{a}{b}\right)^3$$ Write the ratio of volumes.

$$= \left(\frac{1}{5}\right)^3$$ Replace a with 1 and b with 5.

$$= \frac{1}{125}$$ Simplify.

Real-World EXAMPLE

4 The volume of the actual tank is 125 times the volume of the model.

Answer: The volume of the model is 125 ● 24 cm^3 or 3000 cubic centimeters.

Check Use estimation to check the reasonableness of this answer. 125 ● 20 = 2500 and 125 ● 30 = 3,750, so the answer must be between 2,500 and 3,750. The answer is 3,000 cm^3 is reasonable.

CHECK Your Progress

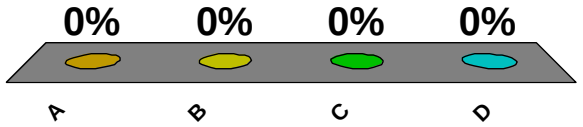
4 **TRAINS** A scale model of a railroad boxcar is built on a scale of 1 inch to 50 inches and has a volume of 72 cubic inches. What is the volume of the actual boxcar?

A. 9,000,000 in^3

B. 373,248 in^3

C. 180,000in^3

D. 3,600 in^3



CheckPoint

End of the Lesson

Click the mouse button to return to the Chapter Menu.

Chapter Resources Menu

Concepts in Motion

Five-Minute CHECK

Lesson 11-1	(over Chapter 10)
Lesson 11-2	(over Lesson 11-1)
Lesson 11-3	(over Lesson 11-2)
Lesson 11-4	(over Lesson 11-3)
Lesson 11-5	(over Lesson 11-4)
Lesson 11-6	(over Lesson 11-5)

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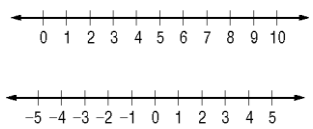
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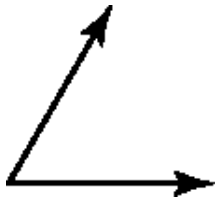

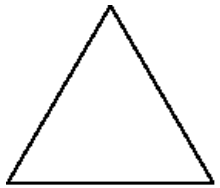

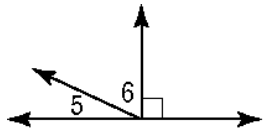
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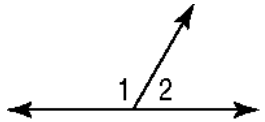
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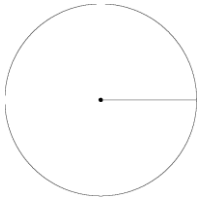

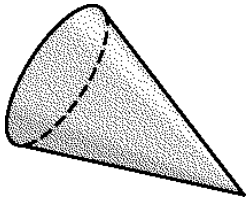

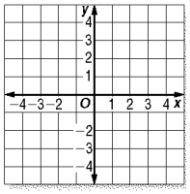
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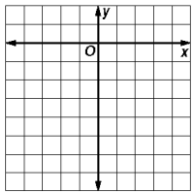
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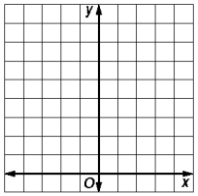
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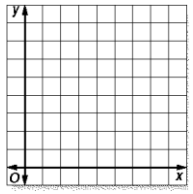
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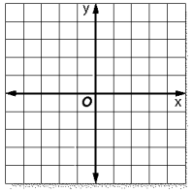
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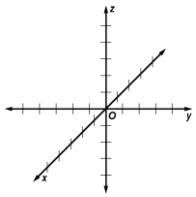
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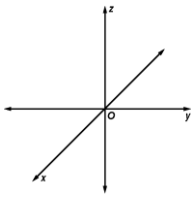
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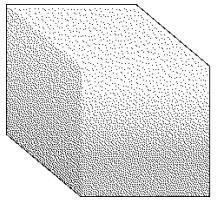

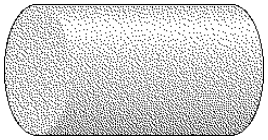

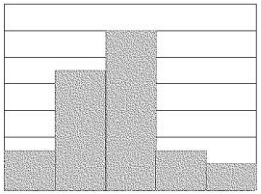

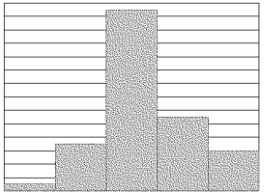

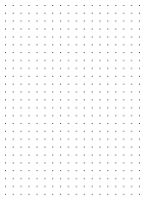

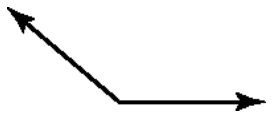

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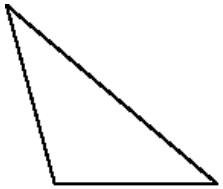
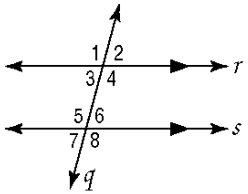
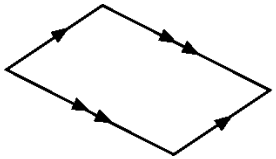
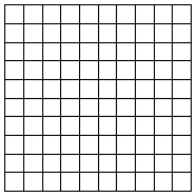
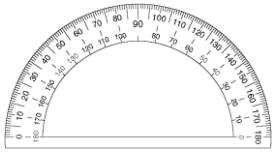
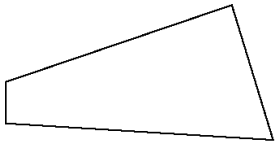


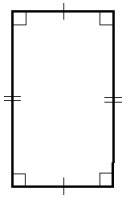


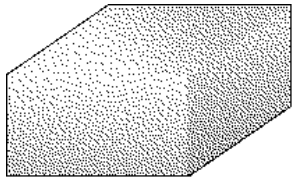


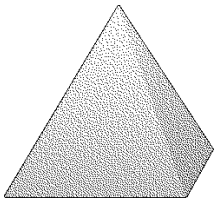


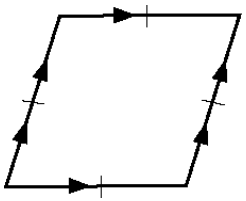


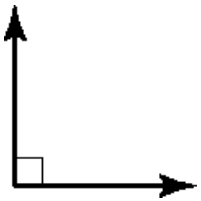


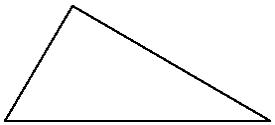


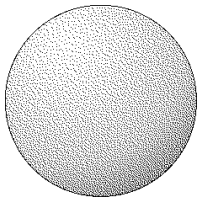


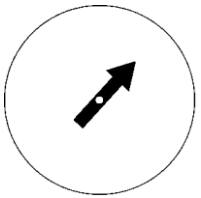


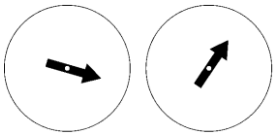


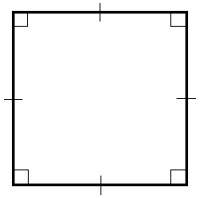












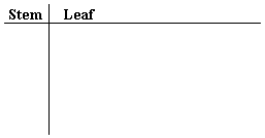
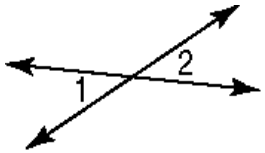
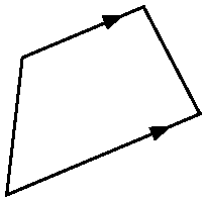
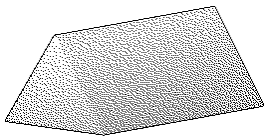
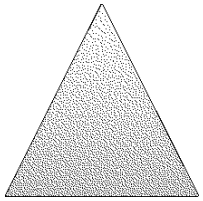


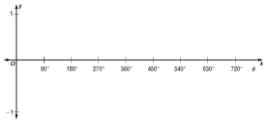
Image Bank

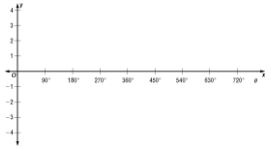


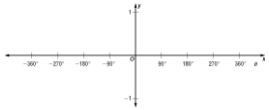


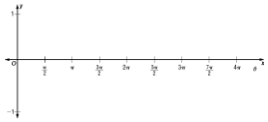


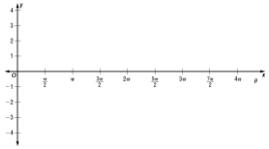












Concepts in Motion

Animation

Five-Minute CHECK (over Chapter 10)

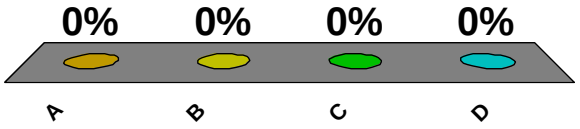
1 If $\triangle FOG \cong \triangle HAT$, name the segment that is congruent to $\overline{TH}$.

A. $\overline{OF}$

B. $\overline{GO}$

C. $\overline{FO}$

D. $\overline{GF}$



CheckPoint

Five-Minute CHECK (over Chapter 10)

2 The vertices of figure *WXYZ* are *W*(2, 3), *X*(4, 5), *Y*(5, –1), and *Z*(1, –2). Find the coordinates of the image after a reflection over the *y*-axis.

A. *W*′(–2, 3), *X*′(–4, 5), *Y*′(–5, –1), *Z*′(–1, –2)

B. *W*′(–2, 3), *X*′(–4, 5), *Y*′(–5, 1), *Z*′(–1, –2)

C. *W*′(–2, 3), *X*′(–4, –5), *Y*′(–5, –1), *Z*′(–1, –2)

D. *W*′(2, 3), *X*′(–4, 5), *Y*′(5, –1), *Z*′(–1, –2)

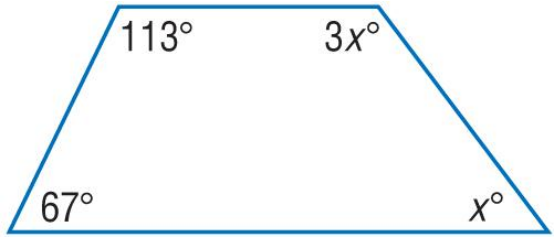
0%

A B C D

CheckPoint

Five-Minute CHECK (over Chapter 10)

3 Find the value of x in the figure. Then find the missing angle measures.



A. $x = 38$; 38°; 114°

0%

B. $x = 67$; 67°; 134°

C. $x = 40$; 40°; 120°

D. $x = 45$; 45°; 135°

A B C D

CheckPoint

Five-Minute CHECK (over Chapter 10)

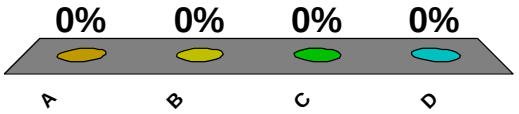
4 Find the area of a triangle with a base of 34 centimeters and a height of 19 centimeters.

A. 161.5 cm^2

B. 323 cm^2

C. 646 cm^2

D. 680 cm^2



CheckPoint

Five-Minute CHECK (over Chapter 10)

5 A round table has a diameter of 25 inches. What is the circumference of the table? Round to the nearest tenth.

A. 39.3 in.

B. 78.5 in.

C. 196.3 in.

D. 490.9 in.

0%

A B C D

CheckPoint

Five-Minute CHECK (over Chapter 10)

Standardized Test Practice

6 The exterior angle at each vertex of a regular polygon measures 72°. What type of polygon is it?

A. equilateral triangle

0%

B. square

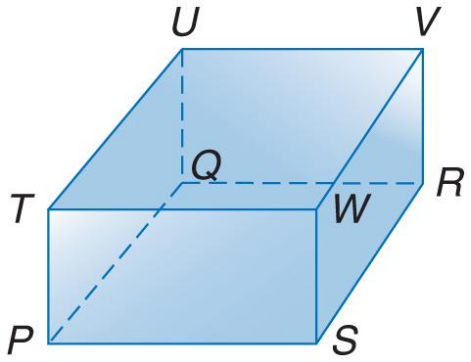
C. regular pentagon

D. regular hexagon

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-1)



1 Identify the solid.

A. cube

B. rectangular prism

0%

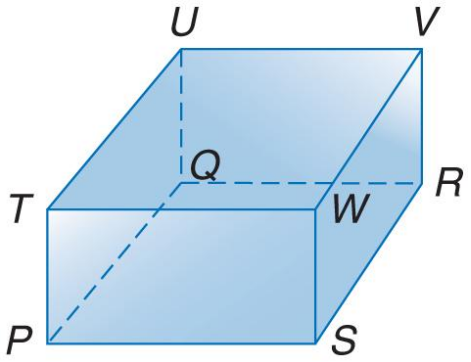
C. rectangular pyramid

D. triangular prism

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-1)



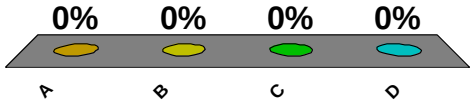
2 **In the figure, name the faces of the rectangular prism.**

A. *PTUQ*, *QUVR*, *PQRS*, *SWVR*, *PTWR*, and *TWQR*

B. *PTUQ*, *QUVR*, *PQRS*, *SWVR*, *PTWS*, and *TUVW*

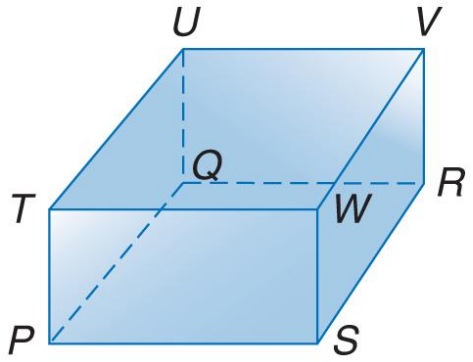
C. *PTUQ*, *QURS*, *PQRS*, *SWVR*, *PTWS*, and *TUVS*

D. *PTUQ*, *QUVR*, *PQRV*, *SWVR*, *PTWS*, and *TUVW*



CheckPoint

Five-Minute CHECK (over Lesson 11-1)



3 In the figure, list the edges of the solid.

A. $\overline{PT}$, $\overline{QU}$, $\overline{RV}$, $\overline{SW}$, $\overline{PS}$, $\overline{SR}$, $\overline{RQ}$, $\overline{PQ}$, $\overline{TU}$, $\overline{UV}$, $\overline{VW}$, $\overline{WT}$

B. $\overline{PT}$, $\overline{QU}$, $\overline{RV}$, $\overline{SV}$, $\overline{PS}$, $\overline{SR}$, $\overline{RQ}$, $\overline{PQ}$, $\overline{TQ}$, $\overline{UV}$, $\overline{VW}$, $\overline{WT}$

C. $\overline{PT}$, $\overline{QU}$, $\overline{RP}$, $\overline{SW}$, $\overline{PS}$, $\overline{SR}$, $\overline{RQ}$, $\overline{PQ}$, $\overline{TU}$, $\overline{UR}$, $\overline{VW}$, $\overline{WT}$

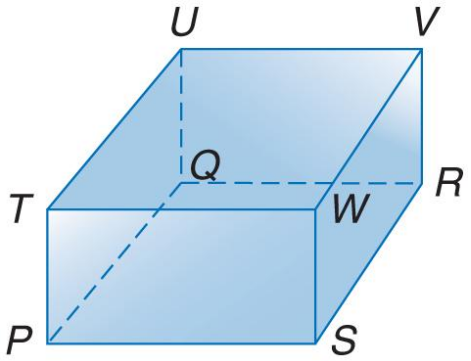
D. $\overline{PT}$, $\overline{QU}$, $\overline{RV}$, $\overline{SW}$, $\overline{PS}$, $\overline{SR}$, $\overline{RQ}$, $\overline{PQ}$, $\overline{TR}$, $\overline{UV}$, $\overline{VW}$, $\overline{WP}$

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-1)



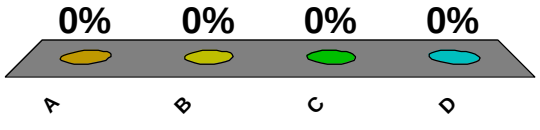
4 In the figure, list the diagonals of the solid.

A. $\overline{PW}$, $\overline{TS}$, $\overline{QV}$, $\overline{RU}$

B. $\overline{WR}$, $\overline{VS}$, $\overline{PU}$, $\overline{QT}$

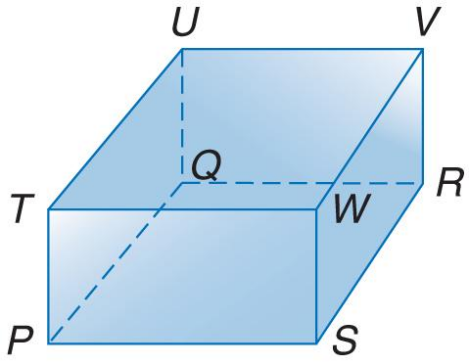
C. $\overline{PV}$, $\overline{QW}$, $\overline{RT}$, $\overline{SU}$

D. $\overline{PR}$, $\overline{QS}$, $\overline{VT}$, $\overline{UW}$



CheckPoint

Five-Minute CHECK (over Lesson 11-1)



5 In the figure, name the vertices.

A. *TW, WS, SP, TP*

B. *P, S, R, Q, T, W, V, U*

C. *TP, WS, VR, VQ*

D. *T, U, V, W*

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-1)

Standardized Test Practice

6 How many faces of a triangular prism are triangles?

A. 2

0%

B. 3

C. 5

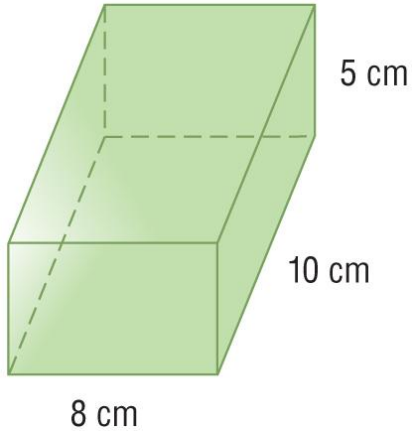
D. 6

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-2)

1 Find the volume of the solid shown in the figure. If necessary, round to the nearest tenth.

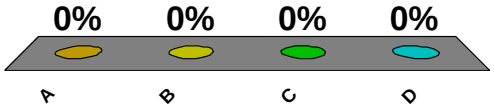


A. 170 cm^3

B. 200 cm^3

C. 340 cm^3

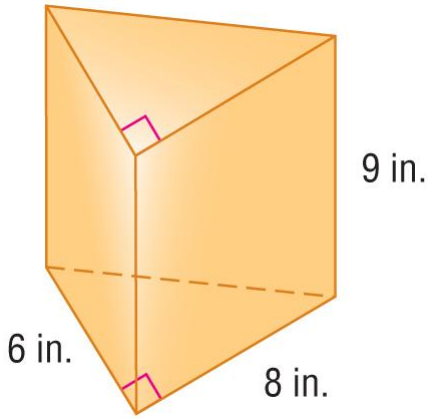
D. 400 cm^3



CheckPoint

Five-Minute CHECK (over Lesson 11-2)

2 Find the volume of the solid shown in the figure. If necessary, round to the nearest tenth.



A. 612 in^3

B. 432 in^3

C. 291 in^3

D. 216 in^3

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-2)

3 Find the height of a cylinder with a radius of 3 feet and a volume of 127.2 ft^3. Round to the nearest tenth.

A. 4.5 ft

0%

B. 13.5 ft

C. 14.1 ft

D. 20.3 ft

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-2)

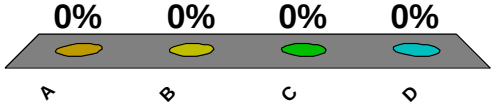
4 A cubic inch of water weighs 0.036 pound. A 10-gallon fish tank measures 20 inches by 10 inches by 12 inches. How much will the water in the fish tank weigh if it is filled to capacity?

A. 83.1 pounds

B. 86.4 pounds

C. 277.8 pounds

D. 666.7 pounds



CheckPoint

Five-Minute CHECK (over Lesson 11-2)

Standardized Test Practice

5 Which is the best estimate for the volume of a rectangular prism with the dimensions shown in the table.

Dimensions	
length	5.8 in.
width	2.1 in.
height	9.7 in.

A. 240 in^3

B. 120 in^3

C. 60 in^3

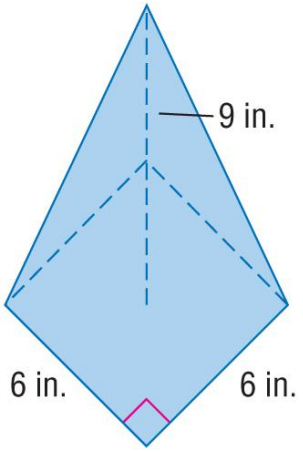
D. 6.0 in^3

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-3)



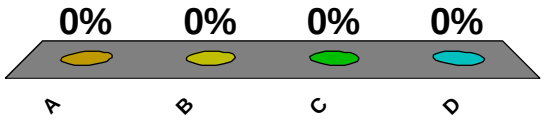
1 **Find the volume of the solid shown in the figure. If necessary, round to the nearest tenth.**

A. $54\ in^3$

B. $108\ in^3$

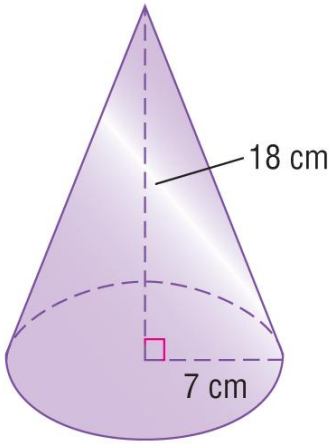
C. $162\ in^3$

D. $324\ in^3$



CheckPoint

Five-Minute CHECK (over Lesson 11-3)



2 Find the volume of the solid shown in the figure. If necessary, round to the nearest tenth.

A. $329.6\ cm^3$

B. $923.6\ cm^3$

C. $1385.4\ cm^3$

D. $2770.9\ cm^3$

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-3)

3 Find the volume of a rectangular pyramid having base area 31.5 ft^2 and height 7.4 ft.

A. 77.7 ft^2

0%

B. 101 ft^2

C. 116.6 ft^2

D. 223.1 ft^2

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-3)

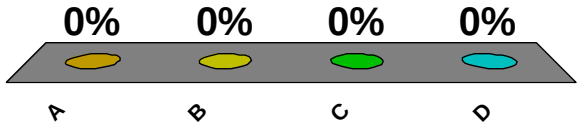
4 Find the volume of a hexagonal pyramid having base area 120 mm^2 and height 9 mm.

A. 1080 mm^3

B. 540 mm^3

C. 360 mm^3

D. 180 mm^3



CheckPoint

Five-Minute CHECK (over Lesson 11-3)

5 A cone has a radius of 1.2 inches and a height of 5 inches. What is the volume of the cone?

A. 30.2 in^3

B. 22.6 in^3

C. 11.3 in^3

D. 7.5 in^3

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-3)

Standardized Test Practice

6 A cylinder and a cone have the same volume. Both the cylinder and the cone have a radius of 3 inches. If the height of the cone is 6 inches, what is the height of the cylinder?

0%

A. 2 in.

B. 3 in.

C. 6 in.

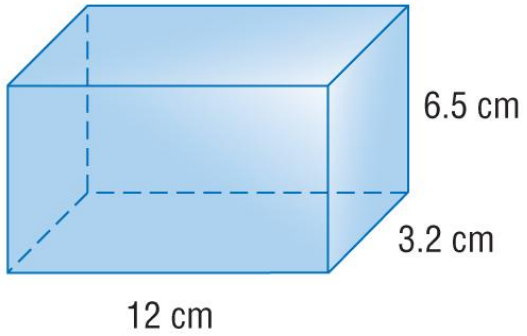
D. 9 in.

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-4)

1 Find the surface area of the solid shown in the figure. If necessary, round to the nearest tenth.

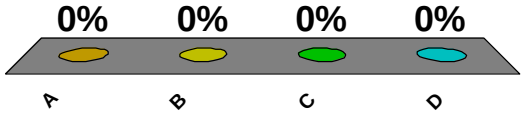


A. 249.6 cm^2

B. 274.4 cm^2

C. 470.9 cm^2

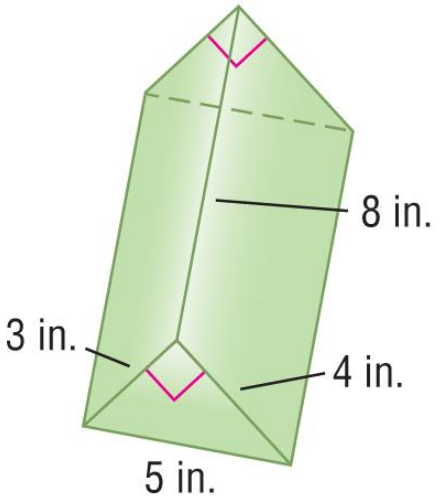
D. 499.2 cm^2



CheckPoint

Five-Minute CHECK (over Lesson 11-4)

2 Find the surface area of the solid shown in the figure. If necessary, round to the nearest tenth.



A. 108 in^2

B. 116 in^2

C. 158 in^2

D. 480 in^2

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-4)

3 Find the surface area of a cylinder with diameter 12 cm and height 29 cm. If necessary, round to the nearest tenth.

A. 348 cm^2

B. 1093.2 cm^2

C. 1319.5 cm^2

D. 3279.8 cm^2

0%

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-4)

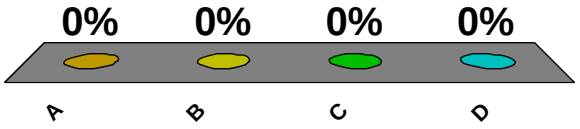
4 Find the surface area of a cube having a side length of 0.8 m. If necessary, round to the nearest tenth.

A. 1.6 m^2

B. 3.1 m^2

C. 3.8 m^2

D. 4.8 m^2



CheckPoint

Five-Minute CHECK (over Lesson 11-4)

5 Amy needs to wrap a box that is 18 inches long, 11 inches wide, and 3 inches high. What is the minimum amount of wrapping paper that she needs?

A. 750 in^2

B. 700 in^2

C. 594 in^2

D. 570 in^2

0%

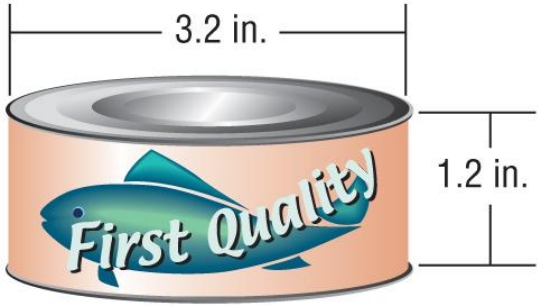
A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-4)

Standardized Test Practice

6 To the nearest square inch, how much area does the label of the can shown in the figure cover?



A. $4\ in^2$

0%

B. $12\ in^2$

C. $18\ in^2$

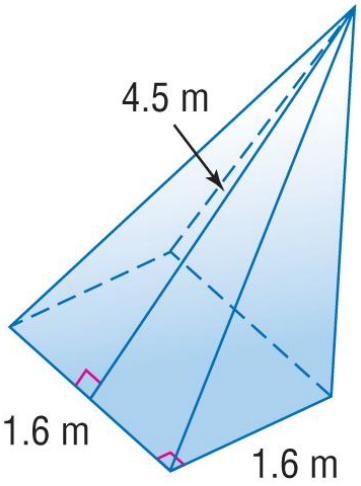
D. $22\ in^2$

A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-5)

1 Find the surface area of the solid shown in the figure. If necessary, round to the nearest tenth.

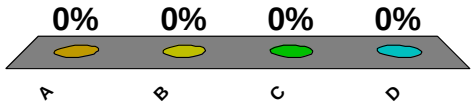


A. 10.6 m^2

B. 11.5 m^2

C. 17.0 m^2

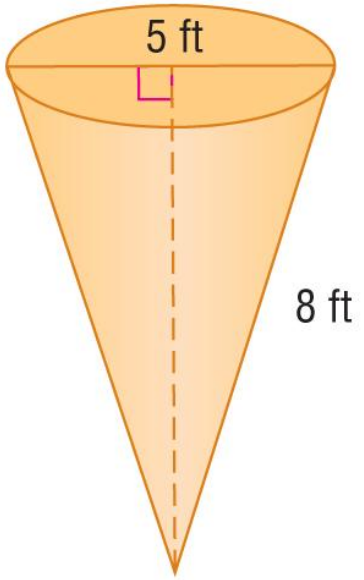
D. 28.8 m^2



CheckPoint

Five-Minute CHECK (over Lesson 11-5)

2 Find the surface area of the solid shown in the figure. If necessary, round to the nearest tenth.



A. 77.3 ft^2

B. 82.5 ft^2

C. 157 ft^2

D. 628.3 ft^2

0%

A B C D

Five-Minute CHECK (over Lesson 11-5)

3 An ice cream cone has a radius of 1.2 inches, and a slant height of 6 inches. What is the lateral surface area of the cone?

A. 7.2 in^2

B. 21.8 in^2

C. 22.6 in^2

D. 27.1 in^2

0%

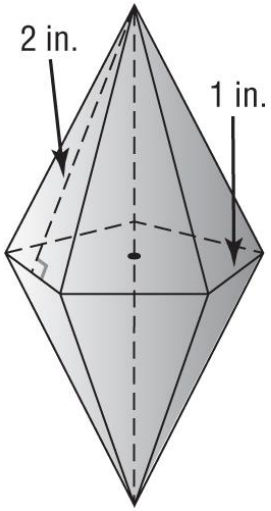
A B C D

CheckPoint

Five-Minute CHECK (over Lesson 11-5)

Standardized Test Practice

4 An ornament has the shape of 2 regular pentagonal pyramids attached at their bases. The length of each side of the polygon is 1 inch, and the slant height of each pyramid is 2 inches. What is the surface area of the ornament?

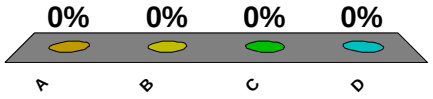


A. $5\ in^2$

B. $10\ in^2$

C. $20\ in^2$

D. $25\ in^2$



CheckPoint