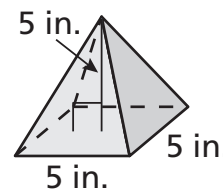
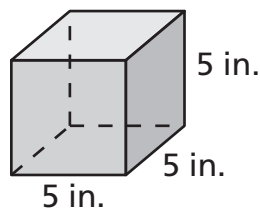


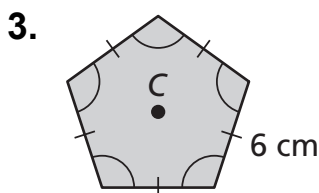
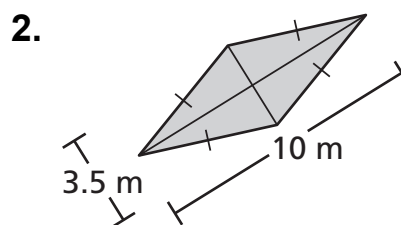
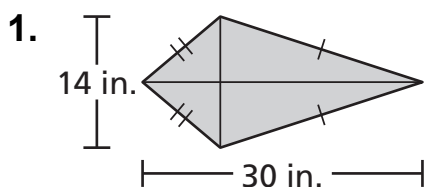
11.6 Start Thinking

The diagrams show a cube and a pyramid. Each has a square base with an area of 25 square inches and a height of 5 inches. How do the volumes of the two figures compare? Explain your answer.



11.6 Warm Up

Find the area of the figure.



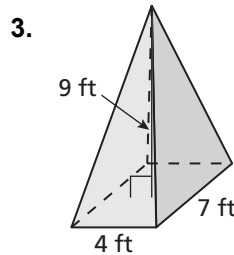
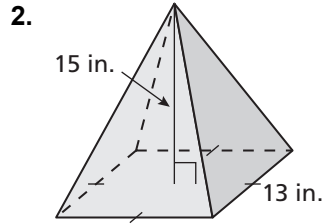
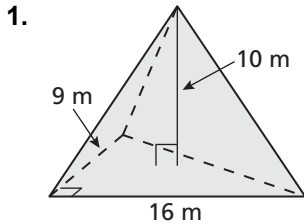
11.6 Cumulative Review Warm Up

Use the given information to write the standard equation of the circle.

1. The center is $(2, 5)$, and the measure of the radius is 7 units.
2. The center is $(-3, 9)$, and the measure of the diameter is 6 units.
3. The center is $(8, -4)$, and a point on the circle is $(0, -4)$.
4. The center is $(-11, -3)$, and a point on the circle is $(1, 2)$.

11.6 Practice A

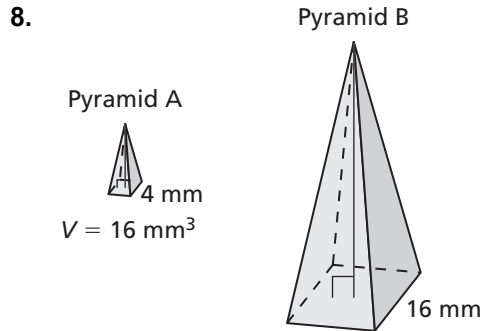
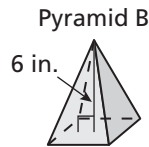
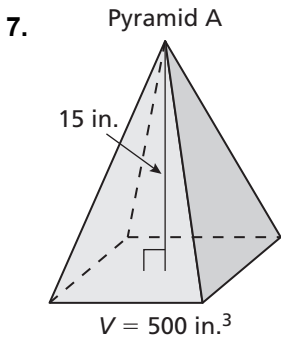
In Exercises 1–3, find the volume of the pyramid.



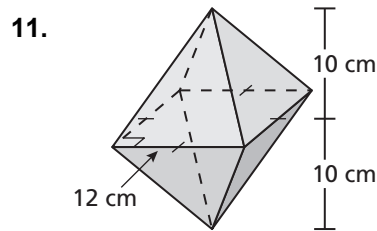
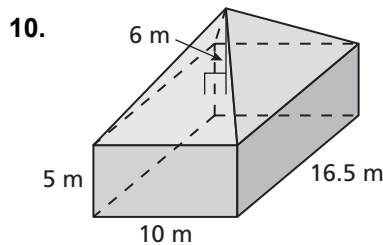
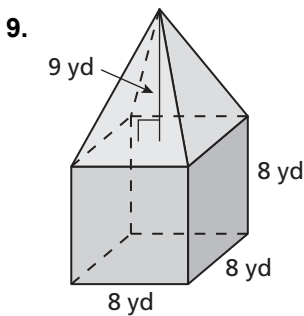
In Exercises 4–6, find the indicated measure.

- A pyramid with a square base has a volume of 320 cubic centimeters and a height of 15 centimeters. Find the side length of the square base.
- A pyramid with a rectangular base has a volume of 60 cubic feet and a height of 6 feet. The width of the rectangular base is 4 feet. Find the length of the rectangular base.
- A pyramid with a triangular base has a volume of 80 cubic meters and a base area of 20 square meters. Find the height of the pyramid.

In Exercises 7 and 8, the pyramids are similar. Find the volume of Pyramid B.



In Exercises 9–11, find the volume of the composite solid.

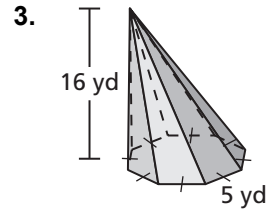
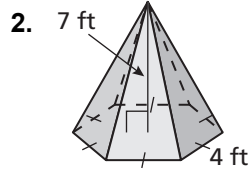
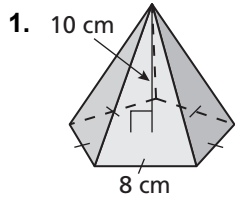


- The Pyramid Arena in Memphis, Tennessee is about 98 meters tall and has a square base with a side length of about 180 meters. A prism-shaped building has the same square base as the Pyramid Arena. What is the height of the building if it has the same volume as the Pyramid Arena?

11.6

Practice B

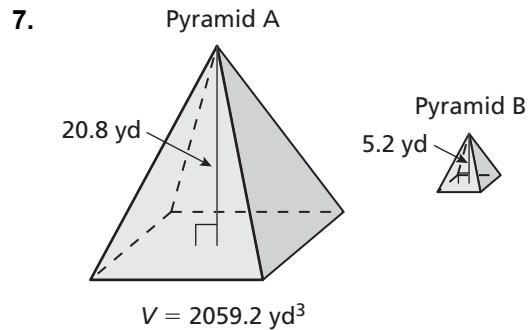
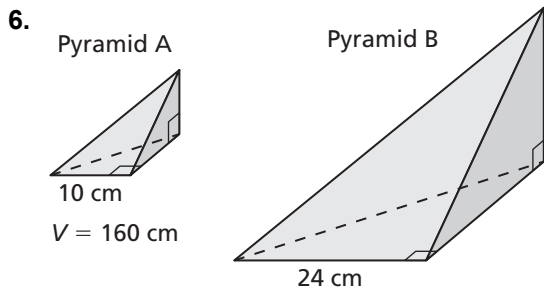
In Exercises 1–3, find the volume of the pyramid.



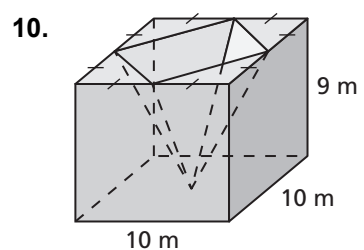
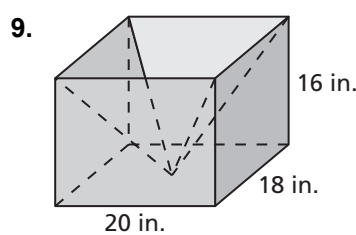
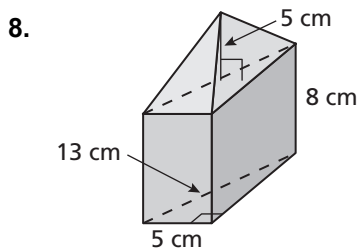
In Exercises 4 and 5, find the indicated measure.

- A pyramid with a square base has a volume of 119.07 cubic meters and a height of 9 meters. Find the side length of the square base.
- A pyramid with a hexagonal base has a volume of about 1082.54 cubic inches and a base area of about 259.81 square inches. Find the height of the pyramid.

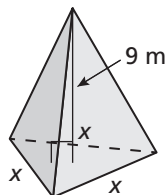
In Exercises 6 and 7, the pyramids are similar. Find the volume of Pyramid B.



In Exercises 8–10, find the volume of the composite solid.



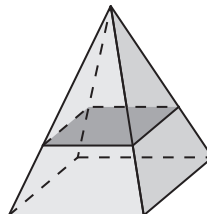
11. The volume of the pyramid shown is $48\sqrt{3}$ cubic meters. Find the value of x .



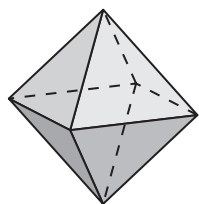
11.6 Enrichment and Extension

Volumes of Pyramids

1. A right square pyramid has a base with a perimeter of 36 centimeters and a height of 12 centimeters. One-third of the distance from the base, the pyramid is cut by a plane parallel to its base. What is the volume of the top pyramid?

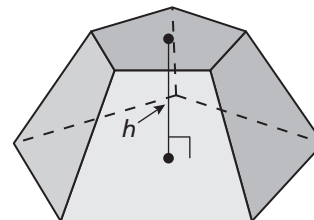


2. A regular octahedron has 8 faces that are equilateral triangles. Find the volume of a regular octahedron with a side length of 10 centimeters.

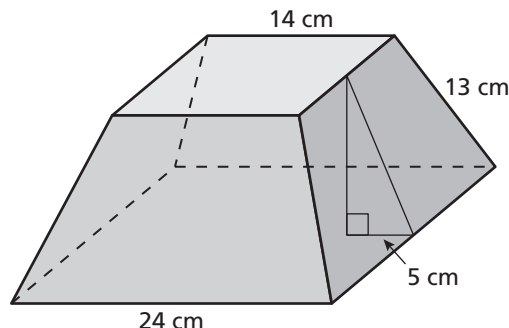


3. A three-dimensional figure in a coordinate space has vertices $A(0, 0, 0)$, $B(8, 0, 0)$, $C(0, 10, 0)$, $D(8, 10, 0)$, and $E(4, 4, 12)$. The height of the figure is EF , where the location of F is $F(4, 4, 0)$. Find the volume of the figure.
4. A three-dimensional figure in a coordinate space has vertices $P(0, 0, 0)$, $N(-10, 0, 0)$, $L(0, -10, 0)$, $M(-10, -10, 0)$, $K(-5, -5, -6)$, and $J(-5, -5, 7)$. What is the formula for finding the volume of the figure? What is the volume?

A *pyramidal frustum* is made by taking off the top half of a pyramid, with a cut parallel to the base. In order to find the volume of a pyramidal frustum, you can use the formula $V = \frac{h}{3}(A + A' + \sqrt{A \cdot A'})$, where A is the area of the larger base, A' is the area of the smaller base, and h is the height.



5. Find the volume of the truncated square pyramid whose larger base edge is 24 centimeters, smaller base edge is 14 centimeters, and lateral edge is 13 centimeters.



11.6 Puzzle Time

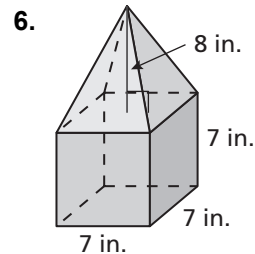
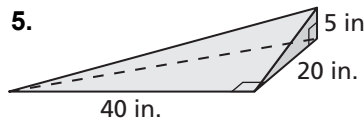
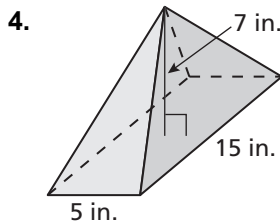
What Do You Get When It Rains On Your Convertible?

Circle the letter of each correct answer in the boxes below. The circled letters will spell out the answer to the riddle.

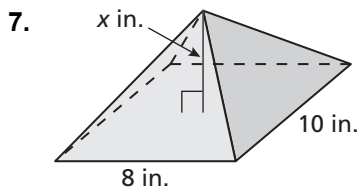
Round your answer to nearest tenth.

1. A pyramid with a square base has a volume of 60 cubic meters and a height of 2 meters. Find the side length in meters of the square base.
2. A pyramid with a rectangular base has a volume of 180 cubic inches and a height of 4 inches. The width of the rectangular base is 6 inches. Find the length in inches of the rectangular base.
3. The side lengths of the bases and length of the heights of two similar square pyramids, Pyramid A and Pyramid B, have a scale factor k of $\frac{1}{2}$. The smaller pyramid (Pyramid A) has a height of 3 units and a volume of 100 cubic units. Find the volume in cubic units of Pyramid B.

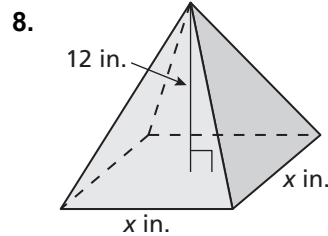
Find the volume (in cubic inches) of the figure. Round your answer to nearest tenth.



Find the value of the variable. Round your answer to nearest tenth.



Volume = 120 in.^3



Volume = 600 in.^3

A	W	E	C	B	A	T	M
22.5	489.3	30.5	800	130.7	473.7	15	24.4
S	R	P	A	O	M	O	L
4	4.5	175	5.5	9.5	200	12.2	666.7