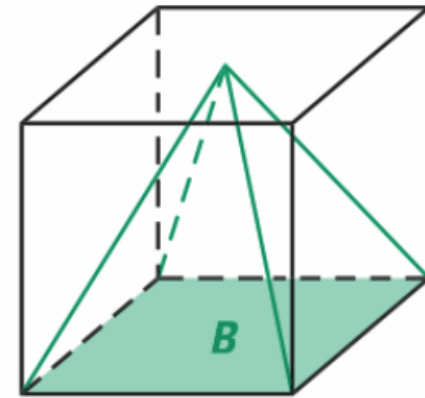


12.5 Volume of Pyramids and Cones

Recall that the volume of a prism is Bh , where B is the area of a base and h is the height. In the figure at the right, you can see that the volume of a pyramid must be less than the volume of a prism with the same base area and height. As suggested by the Activity on page 828, the volume of a pyramid is one third the volume of a prism.

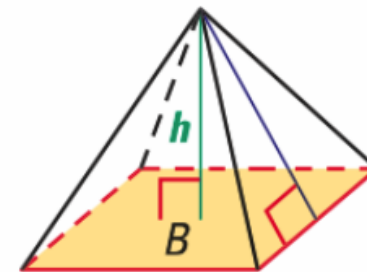


THEOREMS*For Your Notebook***THEOREM 12.9** Volume of a Pyramid

The volume V of a pyramid is

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

where B is the area of the base and h is the height.



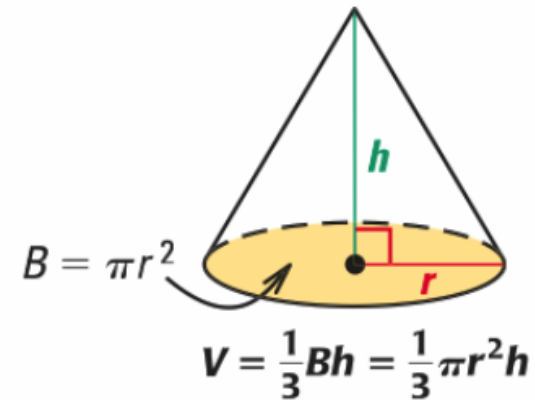
$$V = \frac{1}{3}Bh$$

THEOREM 12.10 Volume of a Cone

The volume V of a cone is

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

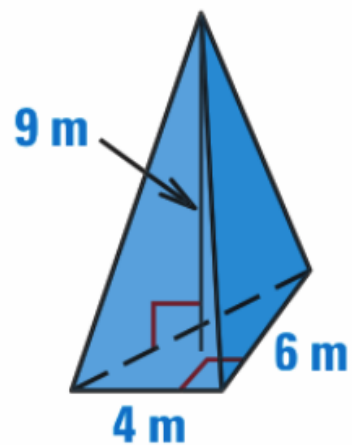
where B is the area of the base, h is the height, and r is the radius of the base.



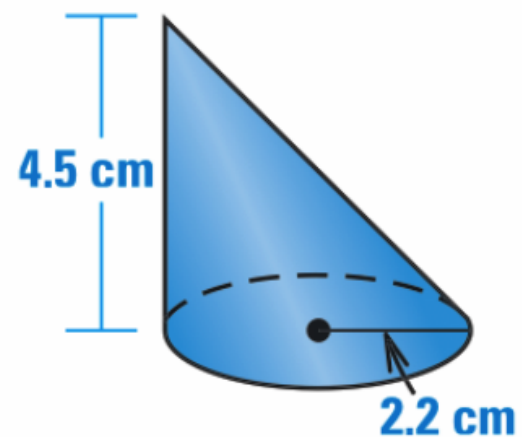
EXAMPLE 1 Find the volume of a solid

Find the volume of the solid.

a.



b.



EXAMPLE 2 Use volume of a pyramid

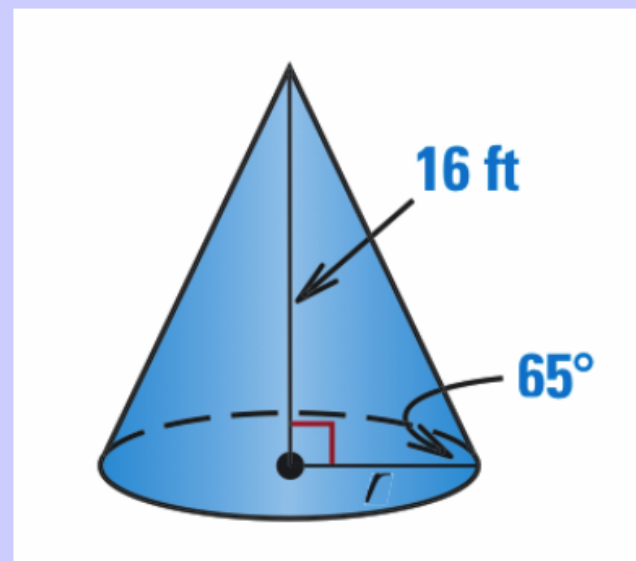
xy ALGEBRA Originally, the pyramid had height 144 meters and volume 2,226,450 cubic meters. Find the side length of the square base.



Khafre's Pyramid, Egypt

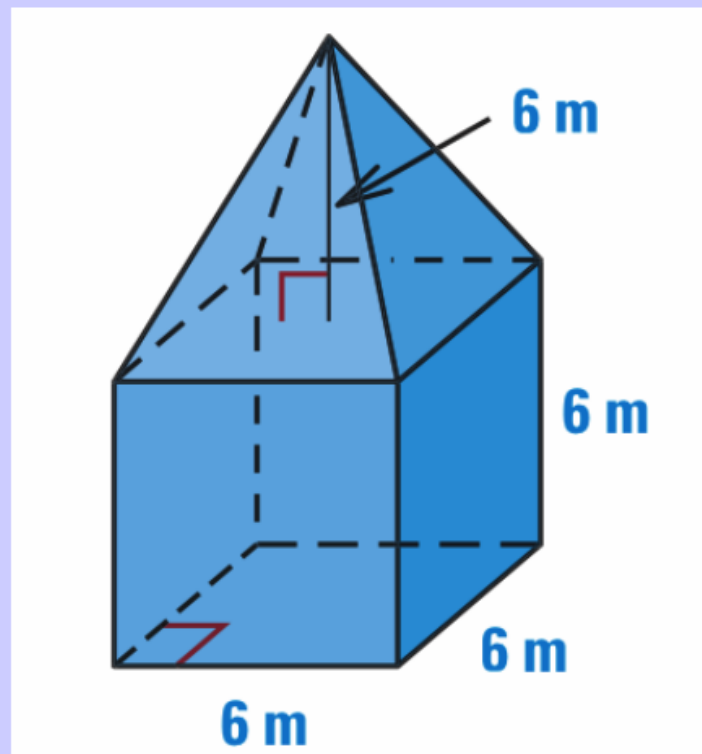
EXAMPLE 3 Use trigonometry to find the volume of a cone

Find the volume of the right cone.



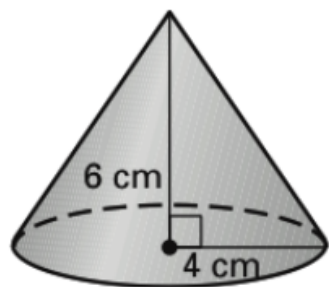
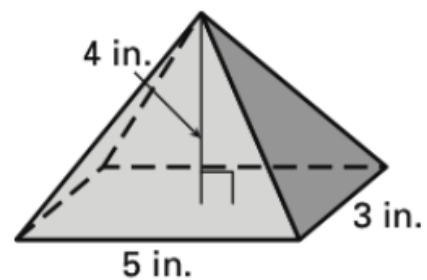
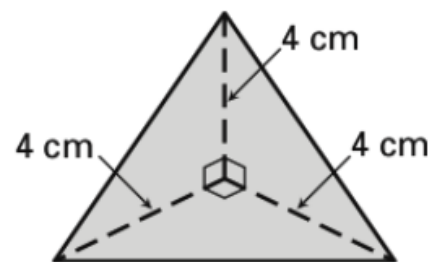
EXAMPLE 4 Find volume of a composite solid

Find the volume of the solid shown.

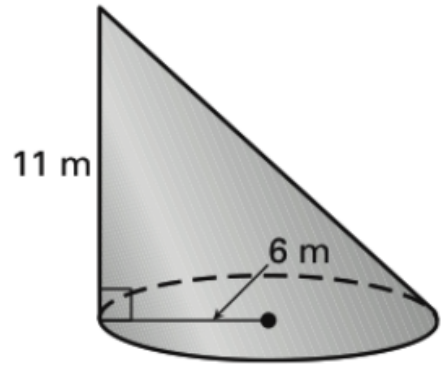


Assignment:

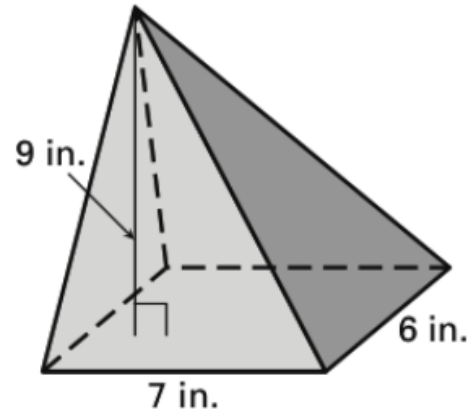
12.5 ws

LESSON
12.5**Practice***For use with pages 828–837***Find the volume of the solid. Round your answer to two decimal places.****1.****2.****3.**

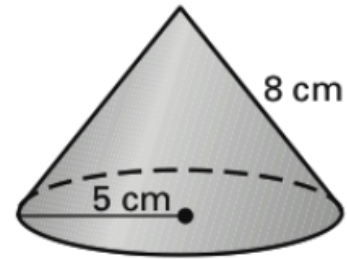
4.



5.

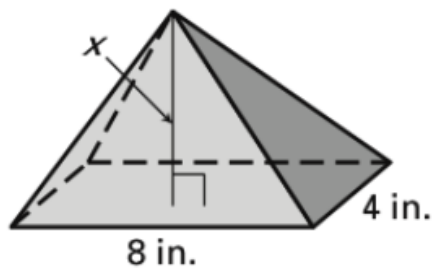


6.

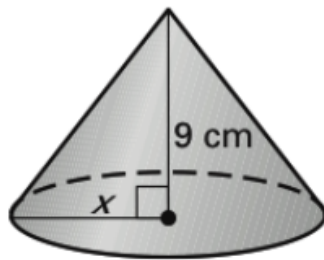


Find the value of x .

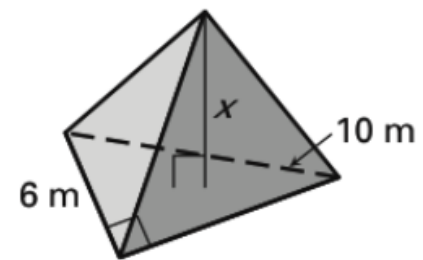
7. $V = 64 \text{ in.}^3$



8. $V = 147\pi \text{ cm}^3$



9. $V = 56 \text{ m}^3$



LESSON
12.5**Practice** *continued*
For use with pages 828–837

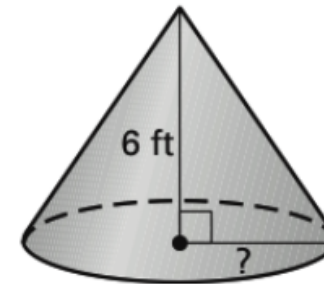
10. Multiple Choice A right cone has a height of 6 feet and a volume of 32π cubic feet. What is its radius?

A. 2 ft

B. 3 ft

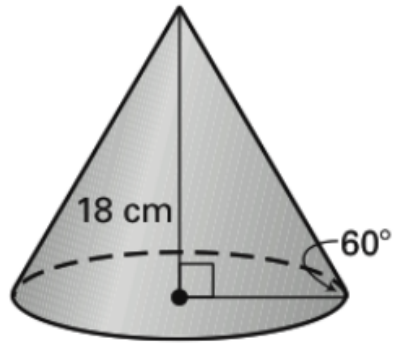
C. 4 ft

D. 5 ft

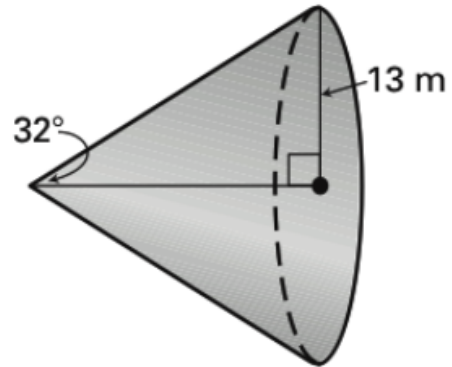


Find the volume of the right cone. Round your answer to two decimal places.

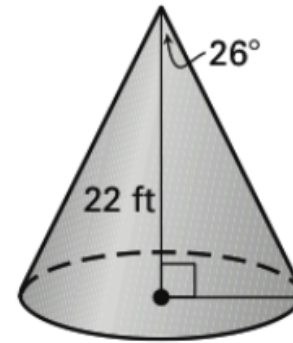
11.



12.



13.



**Find the volume of the solid. The prisms, pyramids, and cones are right.
Round your answer to two decimal places.**

