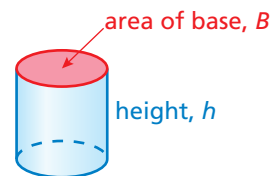


Key Ideas

Volume of a Cylinder

Words The volume V of a cylinder is the product of the area of the base and the height of the cylinder.



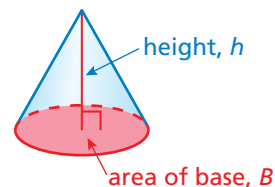
Algebra $V = Bh = \pi r^2 h$

Area of base

Height of cylinder

Volume of a Cone

Words The volume V of a cone is one-third the product of the area of the base and the height of the cone.



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

Area of base

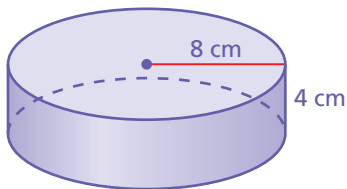
Height of cone

Remember

Pi can be approximated as 3.14 or $\frac{22}{7}$.

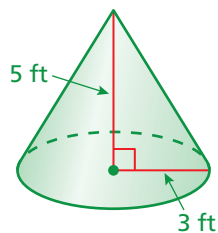
EXAMPLE 1 Finding the Volume of a Cylinder and a Cone

Find the volume of the solid. Round your answer to the nearest tenth.



a. $V = Bh$ Write formula for volume of a cylinder.
 $= \pi(8)^2(4)$ Substitute.
 $= 256\pi \approx 803.8$ Simplify.

∴ The volume is about 803.8 cubic centimeters.



b. $V = \frac{1}{3}Bh$ Write formula for volume of a cone.
 $= \frac{1}{3}\pi(3)^2(5)$ Substitute.
 $= 15\pi \approx 47.1$ Simplify.

∴ The volume is about 47.1 cubic feet.

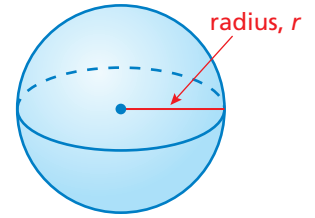
Key Idea

Volume of a Sphere

Words The volume V of a sphere is the product of $\frac{4}{3}\pi$ and the cube of the radius of the sphere.

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

Cube of radius of sphere



EXAMPLE 2 Finding the Volume of a Sphere



The globe of the moon has a radius of 10 inches. Find the volume of the globe. Round your answer to the nearest whole number.

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

Write formula for volume of a sphere.

$$= \frac{4}{3}\pi(10)^3$$

Substitute.

$$= \frac{4000}{3}\pi \approx 4187$$

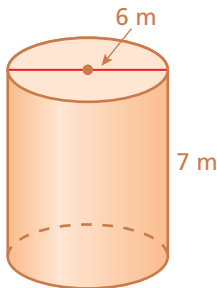
Simplify.

The volume of the globe is about 4187 cubic inches.

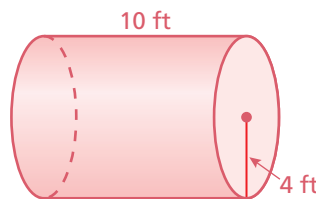
Practice

Find the volume of the solid. Round your answer to the nearest tenth.

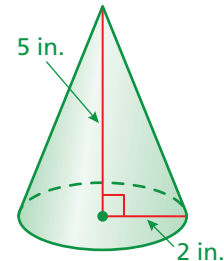
1.



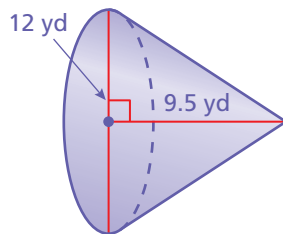
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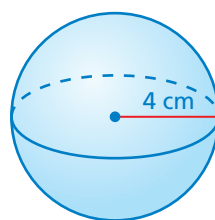
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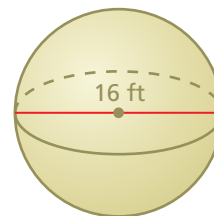
4.



5.



6.



7. **PACKAGING** A cylindrical container of three rubber balls has a height of 18 centimeters and a diameter of 6 centimeters. Each ball in the container has a radius of 3 centimeters. Find the amount of space in the container that is not occupied by rubber balls. Round your answer to the nearest whole number.

