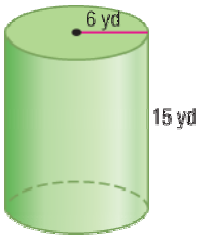
Lesson 10-8

Example 1

Find the volume of the cylinder.



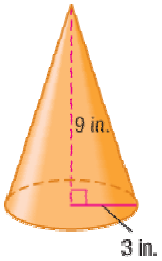
Solution

$V = \pi r^2 h$
$V \approx 3.14 \cdot 6^2 \cdot 15$ $\quad \pi \approx 3.14$
$V \approx 1695.6$

The volume of the cylinder is approximately 1,695.6 yd^3.

Example 2

Find the volume of the cone.



Solution

$V = \frac{1}{3}\pi r^2 h$
$V \approx \frac{1}{3} \cdot 3.14 \cdot 3^2 \cdot 9$ $\quad \pi \approx 3.14$
$V \approx 84.78$

The volume of the cone is approximately 84.78 in^3.

Example 3

ASTRONOMY The diameter of the moon is approximately 2160 miles. What is the volume of the moon?

Solution

Assume that the moon is a sphere. The moon's radius is half of 2160 mi, or 1080 mi.

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

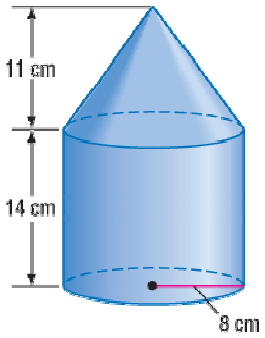
$V \approx \frac{4}{3} \cdot 3.14 \cdot 1080^3$ $\pi \approx 3.14$

$V \approx 5.274 \times 10^9$

The volume of the moon is approximately 5,274,000,000 mi^3.

Example 4

Find the volume of the figure.



Solution

The total volume of the figure is the sum of the cylinder's volume and the cone's volume.

Volume of the cylinder

$V = \pi r^2 h$
$V \approx 3.14 \cdot 8^2 \cdot 14$
$V \approx 2813.44$

Volume of the cone

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

$V \approx \frac{1}{3} \cdot 3.14 \cdot 8^2 \cdot 11$
$V \approx 736.853$

Total volume $\approx 2813.44 + 736.853 \approx 3550.3$

The volume of the figure is approximately 3,550.3 cm^3.