

# 10.3 Volume of Prisms and Cylinders

Objective: Finding the volume of unicorns. Sorry, I mean prisms and cylinders.

## Volume

The amount of \_\_\_\_\_ an object occupies.

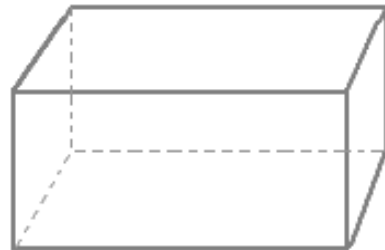
Cylinder



Base



Prism



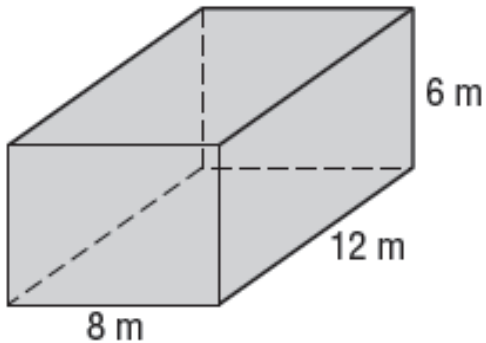
Base



$$V = B h$$

Volume of a Prism:

B = area of the base  
h = height of the prism



1. Draw and label the base.
2. Find the area of the base
3. State the height of the prism
4. Plug into formula

$$V = B h$$

$$V = ( \quad ) ( \quad )$$

area of the base

height of the prism

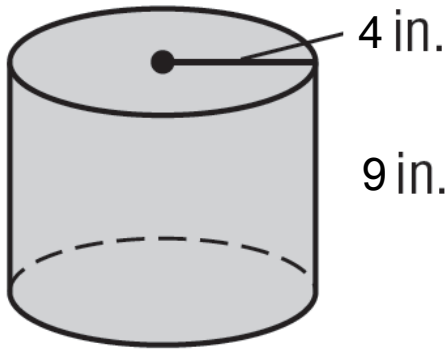
$$V = \underline{\quad}$$

$$V = B h$$

## Volume of a Cylinder:

B = area of the base

h = height of the prism



1. Draw and label the base.
2. Find the area of the base
3. State the height of the cylinder
4. Plug into formula

$$V = B h$$

$$V = ( \quad ) ( \quad )$$

area of the base

height of the  
cylinder

$$V = \underline{\hspace{2cm}}$$

In terms of  $\pi$

$$V = \underline{\hspace{2cm}}$$

Decimal (nearest hundredth)

## Volume Word Problems

A right circular cylinder has a volume of 1,000 cubic inches and a height of 8 inches. What is the radius of the cylinder to the *nearest tenth of an inch*?

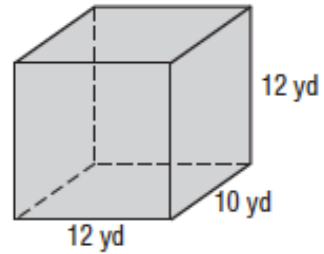
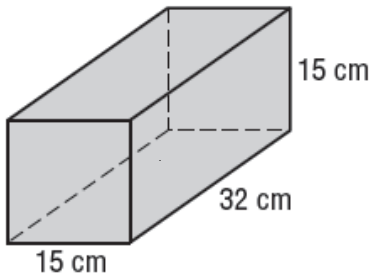
- 1) 6.3
- 2) 11.2
- 3) 19.8
- 4) 39.8

Test taking strategy: **PIAC**

Plug in answer choices in to find the right solution.

## Independent Practice

Find the volume of the prisms below



$$V = B h$$

$$V = ( \quad ) ( \quad )$$

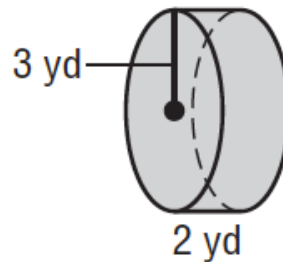
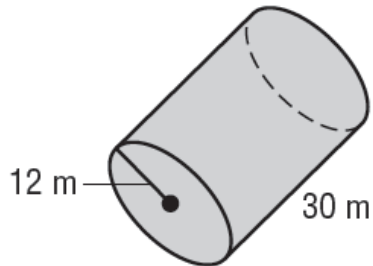
area of the base

height of the prism

$$V = \underline{\hspace{2cm}}$$

$$V = \underline{\hspace{2cm}}$$

Find the volume of the cylinders below. State your answer in terms of  $\pi$  as a decimal to the nearest hundredth.



$$V = B h$$

$$V = ( \quad ) ( \quad )$$

$$V = \underline{\hspace{2cm}}$$

In terms of  $\pi$

$$V = \underline{\hspace{2cm}}$$

Decimal (nearest hundredth)

$$V = \underline{\hspace{2cm}}$$

In terms of  $\pi$

$$V = \underline{\hspace{2cm}}$$

Decimal (nearest hundredth)

Get It. GET IT GOOD. And please please please show all your work

The volume of a cylindrical can is  $32\pi$  cubic inches. If the height of the can is 2 inches, what is its radius, in inches?

The volume of a rectangular prism is 144 cubic inches. The height of the prism is 8 inches. Which measurements, in inches, could be the dimensions of the base?

- 1) 3.3 by 5.5
- 2) 2.5 by 7.2
- 3) 12 by 8
- 4) 9 by 9

A rectangular prism has a base with a length of 25, a width of 9, and a height of 12. A second prism has a square base with a side of 15. If the volumes of the two prisms are equal, what is the height of the second prism?