12.4 Volumes of Prisms and Cylinders

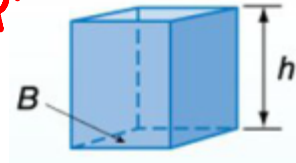<u>Volume</u>: Measure of the amount of space a figure encloses.

- **_Prism:_**
  - ○ Volume: $V = Bh$ ← height of prism

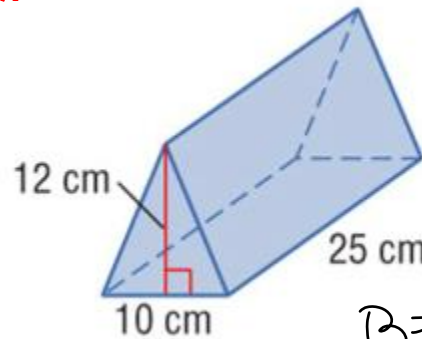 ↑ area of base

Find the volume of the prism:
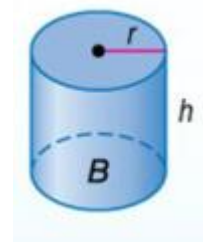
$V = Bh$

$V = 60(25) \cdot cm$

$1500 cm^3$

12 cm
25 cm
10 cm

$B = \frac{1}{2} b \cdot h$ cm

$\frac{1}{2}(10) \cdot 12$

- **_Cylinder:_**
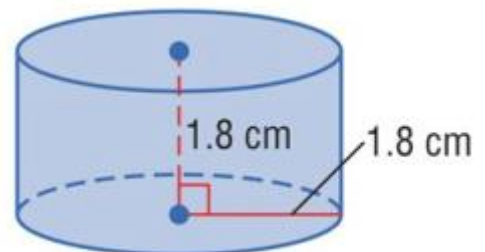 - ○ Volume: $V = \pi r^2 h$
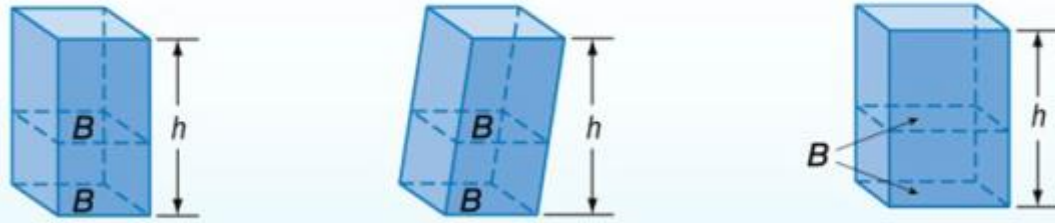
Find the volume of the cylinder to the nearest tenth.

$V = \pi r^2 h$

$V = \pi \cdot 1.8^2 \cdot 1.8$

$18.32 cm^3$

1.8 cm   1.8 cm

If two solids have the same height h and the same cross-sectional area B at every level, then they have the same volume.

These prisms all have a volume of Bh.

Find the volume of the cylinder, round to the nearest tenth.

$$V = \pi r^2 \cdot h$$

$$V = \pi \cdot 15^2 \cdot (25)$$

$$V = 17{,}671.5 \text{ ft}^3$$

15 ft

25 ft

15 ft