

10-3C Volume Notes: Composite Three-Dimensional Figures

For **Prisms** and **Cylinders**

$$V = Bh$$

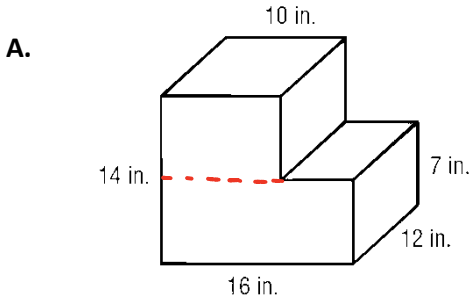
B: area of base shape
h: height of prism/cylinder

For **Pyramids** and **Cones**

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

B: area of base shape
h: height of pyramid/cone

Ex. 1: Find the volume of each composite figure. Round to the nearest tenth if necessary.

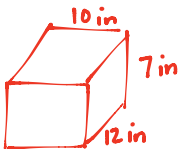


Top box:

$$V = Bh$$

$$= lwh$$

$$= 12(10)(7)$$

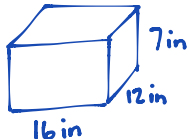
$$V = 840 \text{ in}^3$$


Bottom box:

$$V = Bh$$

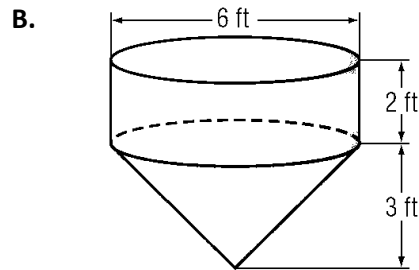
$$= lwh$$

$$= 12(16)(7)$$

$$V = 1344 \text{ in}^3$$


Top + Bottom = Total

$$840 \text{ in}^3 + 1344 \text{ in}^3 = \boxed{2184 \text{ in}^3}$$



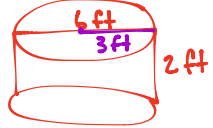
Cylinder:

$$V = Bh$$

$$= \pi r^2 h$$

$$= \pi (3)^2 (2)$$

$$= 3.14(9)(2)$$

$$V = 56.52 \text{ ft}^3$$


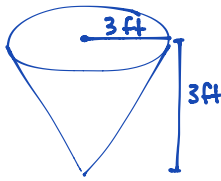
Cone:

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

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

$$= \frac{\pi (3)^2 (3)}{3}$$

$$= 3.14(9)$$

$$V = 28.26 \text{ ft}^3$$


Cylinder + Cone = Total

$$56.52 \text{ ft}^3 + 28.26 \text{ ft}^3 = \boxed{84.8 \text{ ft}^3}$$

KEY TIPS:

- 1) Circle (height of figure)
- 2) Shade (bases)
- 3) Name (figure using the shape of the base)
- 4) Write basic formula for 3-D figure
- 5) Write specific formula (according to base)
- 6) Substitute values
- 7) Calculate
- 8) Check units/rounding