

# Compound Volume with Pictures

Big Idea: Use knowledge of volume to solve for compound/composite shapes.

Break the composite figure down into shapes you know.

Examples:

Cylinder

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

$$V = \pi 4^2 \cdot 10$$

$$V = 16 \cdot 10 \cdot \pi$$

$$V = 208\pi$$

Cone

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

$$V = \frac{\pi 4^2 \cdot 10}{3}$$

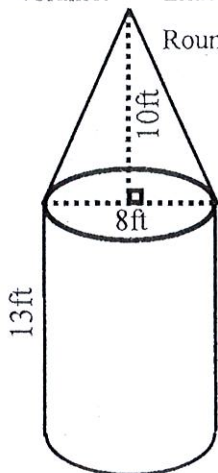
$$V = \frac{16 \cdot 10 \cdot \pi}{3}$$

$$V = \frac{160\pi}{3} \quad V = 53\frac{1}{3}\pi$$

Volume:

Exact:  $261\frac{1}{3}\pi \text{ ft}^3$

Rounded:  $820.586 \text{ ft}^3$



$$\begin{array}{r} 208\pi \\ + 53\frac{1}{3}\pi \\ \hline 261\frac{1}{3}\pi \end{array}$$

Cone

Volume:

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

$$V = \frac{\pi 5^2 \cdot 17}{3}$$

$$V = \frac{25 \cdot 17 \cdot \pi}{3}$$

$$V = \frac{425\pi}{3}$$

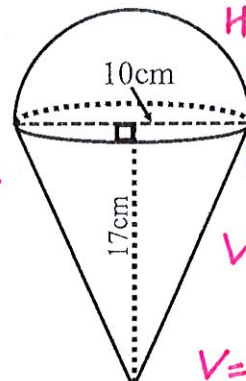
$$V = 141\frac{2}{3}\pi$$

$$\begin{array}{r} 141\frac{2}{3}\pi \\ + 83\frac{1}{3}\pi \\ \hline 225\pi \end{array}$$

Volume:

Exact:  $225\pi \text{ cm}^3$

Rounded:  $706.5 \text{ cm}^3$



Hemisphere

$$V = \frac{4\pi r^3}{3} \div 2$$

$$V = \frac{4\pi r^3}{6}$$

$$V = \frac{4\pi 5^3}{6}$$

$$V = \frac{4 \cdot 125 \cdot \pi}{6}$$

$$V = \frac{500\pi}{6}$$

$$V = 83\frac{1}{3}\pi$$