

# Volume of Cones - HW Key

$$\begin{aligned} \textcircled{1} \quad V &= \frac{1}{3} \pi r^2 h \\ V &= \frac{1}{3} \cdot \pi \cdot 4^2 \cdot 12 \\ V &\approx 201.0619 \\ V &\approx 201.1 \text{ yd}^3 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad V &= \frac{1}{3} \pi r^2 h \\ V &= \frac{1}{3} \cdot \pi \cdot 4.8^2 \cdot 8.2 \\ V &\approx 197.8449 \\ V &\approx 197.8 \text{ cm}^3 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad \text{Radius is 8 mi} \\ V &= \frac{1}{3} \pi r^2 h \\ V &= \frac{1}{3} \cdot \pi \cdot 8^2 \cdot 10 \\ V &= 213\frac{1}{3} \pi \text{ or } 213.\bar{3} \pi \text{ m}^3 \\ &\text{or } \frac{640}{3} \pi \text{ or } \frac{640\pi}{3} \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad \text{Radius is 5 ft} \\ V &= \frac{1}{3} \pi r^2 h \\ V &= \frac{1}{3} \cdot \pi \cdot 5^2 \cdot 10 \\ V &= 83\frac{1}{3} \pi \text{ or } 83.\bar{3} \pi \text{ ft}^3 \\ &\text{or } \frac{250}{3} \pi \text{ or } \frac{250\pi}{3} \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad V &= \frac{1}{3} \pi r^2 h \\ V &= \frac{1}{3} \cdot \pi \cdot 1^2 \cdot 6 \\ V &\approx 6.283 \\ V &\approx 6.3 \text{ km}^3 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad V_{\text{total}} &= V_{\Delta} + V_{\square} \\ V &= \frac{1}{3} \pi r^2 h + \pi r^2 h \\ V &= \frac{1}{3} \cdot \pi \cdot 5^2 \cdot 13 + \pi \cdot 5^2 \cdot 2 \\ V &= 108\frac{1}{3} \pi + 50 \pi \\ V &= 158\frac{1}{3} \pi \text{ or } 158.\bar{3} \pi \text{ cm}^3 \\ &\text{or } \frac{475}{3} \pi \text{ or } \frac{475\pi}{3} \end{aligned}$$

$$\textcircled{7} \quad \text{Radius is 4 cm}$$

$$\begin{aligned} V_{\text{total}} &= V_{\Delta} + V_{\Delta} \\ V &= \frac{1}{3} \pi r^2 h + \frac{1}{3} \pi r^2 h \\ V &= \frac{1}{3} \cdot \pi \cdot 4^2 \cdot 16 + \frac{1}{3} \cdot \pi \cdot 4^2 \cdot 8 \\ V &= 85\frac{1}{3} \pi + 42\frac{2}{3} \pi \\ V &= 128 \pi \text{ cm}^3 \end{aligned}$$

$$\textcircled{8} \quad V_{\text{total}} = V_{\square} + V_{\Delta}$$

$$\begin{aligned} V &= \pi r^2 h + \frac{1}{3} \pi r^2 h \\ V &= \pi \cdot 6^2 \cdot 8.5 + \frac{1}{3} \cdot \pi \cdot 6^2 \cdot 10 \\ V &\approx 961.3273 + 376.9911 \\ V &\approx 1338.3184 \\ V &\approx 1,338.3 \text{ cm}^3 \end{aligned}$$