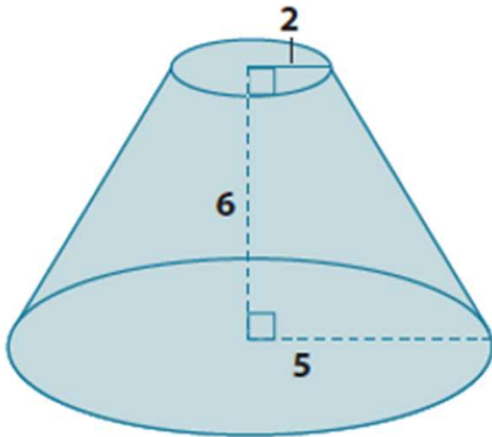


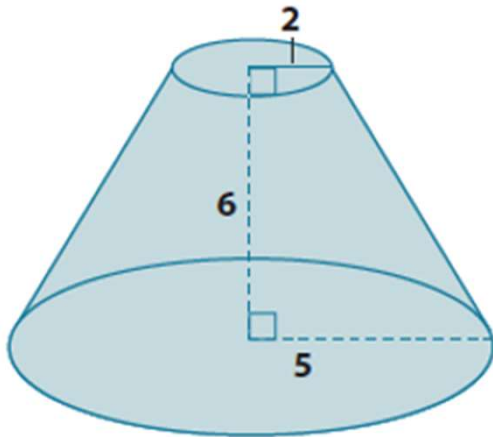
## Volume of Truncated Cone

1. Find the volume of the truncated cone.



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Let  $x$  represent the height of the small cone.

$$\begin{aligned}\frac{2}{5} &= \frac{x}{x+6} \\ 2(x+6) &= 5x \\ 2x+12 &= 5x \\ 12 &= 3x \\ 4 &= x\end{aligned}$$

The volume of the small cone is

$$\begin{aligned}V &= \frac{1}{3}\pi(2)^2(4) \\ &= \frac{16}{3}\pi.\end{aligned}$$

The volume of the large cone is

$$\begin{aligned}V &= \frac{1}{3}\pi(5)^2(10) \\ &= \frac{250}{3}\pi.\end{aligned}$$

The volume of the truncated cone is

$$\begin{aligned}&\frac{250}{3}\pi - \frac{16}{3}\pi \\ &= \left(\frac{250}{3} - \frac{16}{3}\right)\pi \\ &= \frac{234}{3}\pi = 78\pi.\end{aligned}$$

The volume of the truncated cone is  $78\pi$  units<sup>3</sup>.

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