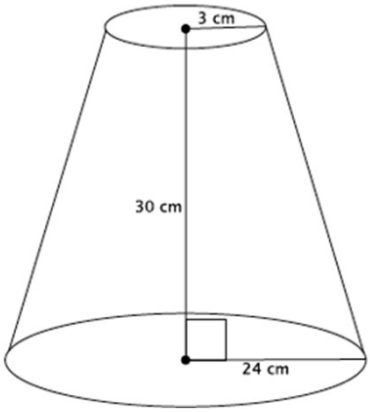
Volume of Truncated Cone

1. Find the volume of the truncated cone.



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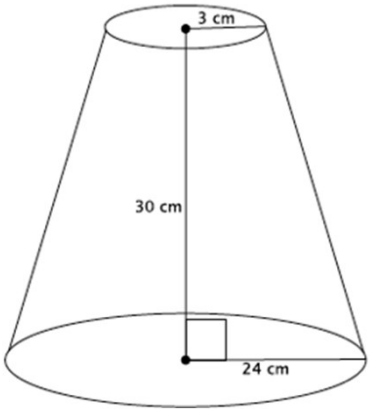

Let x cm represent the height of the small cone.

$$\frac{3}{24} = \frac{x}{x+30}$$
$$3x + 90 = 24x$$
$$90 = 21x$$
$$\frac{30}{7} = x$$
$$4.3 \approx x$$

The volume of the small cone is

$$V \approx \frac{1}{3}\pi(3)^2(4.3)$$
$$\approx \frac{38.7}{3}\pi$$
$$= 12.9\pi.$$

The volume of the large cone is

$$V \approx \frac{1}{3}\pi(24)^2$$
$$(34.3) \approx \frac{19756.8}{3}\pi$$
$$= 6585.6\pi.$$

The volume of the truncated cone is

$$6585.6\pi - 12.9\pi$$
$$= (6585.6 - 12.9)\pi$$
$$= 6572.7\pi.$$

The volume of the truncated cone is approximately $6572.7\pi\ cm^3$