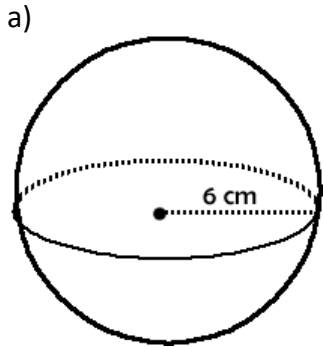


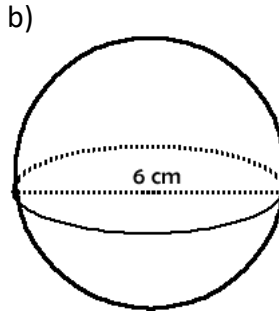
1. Determine the volume of the solid.



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

$$V = \frac{4\pi(6)^3}{3} = \frac{864\pi}{3}$$

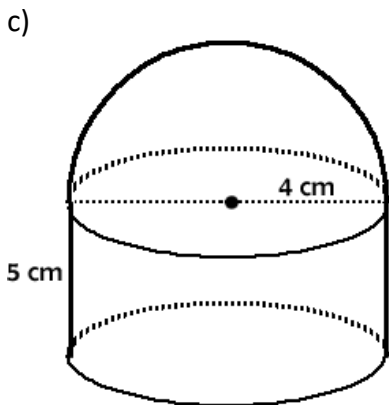
Volume = $288\pi \text{ cm}^3$ (E)



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

$$V = \frac{4\pi(3)^3}{3} = \frac{108\pi}{3}$$

Volume = $36\pi \text{ cm}^3$ (E)



Hemisphere

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

$$V = \frac{2\pi(4)^3}{3} = \frac{128\pi}{3}$$

Cylinder

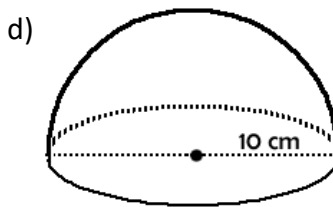
$$V = \pi r^2 h$$

$$V = \pi (4)^2(5) = 80\pi$$

Hemisphere + cylinder

$$\frac{128\pi}{3} + 80\pi$$

Volume = $\frac{368\pi}{3} = 122\frac{2}{3}\pi \text{ cm}^3$ (E)



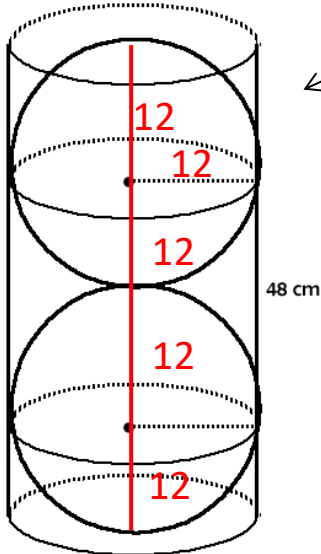
Hemisphere

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

$$V = \frac{2\pi(10)^3}{3} = \frac{2000\pi}{3}$$

Volume = $\frac{2000\pi}{3} \text{ cm}^3$ (E)

e)



Two tennis balls fits exactly in the 48 cm tall cylindrical can. What is the voume of air in the can?

$$r = 12$$

Volume of tennis ball

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

$$V = \frac{4\pi(12)^3}{3} = 2304\pi \text{ cm}^3$$

Two tennis balls

$$2(2304\pi) = 4608\pi$$

Volume of can

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

$$V = \pi (12)^2(48) = 6912\pi$$

$$\begin{aligned} \text{Air} &= \text{cylinder} - 2 \text{ tennis balls} \\ &= 6912\pi - 4608\pi \end{aligned}$$

$$\text{Volume} = \underline{2304\pi \text{ cm}^3} \text{ (E)}$$

f) Surface Area of a sphere = $4\pi r^2$. If the surface area of a sphere is 144π , then what is its volume?

$$4\pi r^2 = 144\pi$$

$$r^2 = 36$$

$$r = 6$$

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

$$V = \frac{4\pi(6)^3}{3} = 288\pi \text{ cm}^3$$

g) Surface Area of a sphere = $4\pi r^2$. If the surface area of a sphere is 16π , then what is its volume?

$$4\pi r^2 = 16\pi$$

$$r^2 = 4$$

$$r = 2$$

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

$$V = \frac{4\pi(2)^3}{3} = \frac{32\pi}{3} \text{ cm}^3$$