

ex 16 p 284

a) Diamètre = 22 cm \Rightarrow Rayon = 11 cm

$$\begin{aligned} \mathcal{A} &= 4\pi R^2 \\ &= 4 \times \pi \times 11^2 \\ &= 484\pi \\ &\approx \underline{\underline{1520 \text{ cm}^2}} \end{aligned}$$

$$\begin{aligned} \mathcal{V} &= \frac{4}{3}\pi R^3 \\ &= \frac{4}{3} \times \pi \times 11^3 \\ &= \frac{4}{3} \times \pi \times 1331 \\ &= \frac{5324}{3}\pi \\ &\approx \underline{\underline{5572 \text{ cm}^3}} \end{aligned}$$

b) $\mathcal{A} = 4 \times \pi \times 10,5^2$
 $= 441\pi$
 $\approx \underline{\underline{1385 \text{ cm}^2}}$

$$\begin{aligned} \mathcal{V} &= \frac{4}{3} \times \pi \times 10,5^3 \\ &= \frac{4}{3} \times \pi \times 1157,625 \\ &= 1543,5\pi \\ &\approx \underline{\underline{4847 \text{ cm}^3}} \end{aligned}$$

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• Volume de la demi-boule :

$$\begin{aligned} \mathcal{V}_1 &= \frac{1}{2} \times \frac{4}{3}\pi R^3 \\ &= \frac{1}{2} \times \frac{4}{3} \times \pi \times 2,3^3 \\ &= 25,5 \text{ cm}^3 \end{aligned}$$

• Volume du cône :

$$\mathcal{V}_2 = \frac{\mathcal{A}_{\text{base}} \times \text{hauteur}}{3}$$

$$= \frac{\pi R^2 \times h}{3} = \frac{\pi \times 2,3^2 \times 6}{3} \approx 332 \text{ cm}^3$$

• Volume total :

$$\begin{aligned} \mathcal{V} &= \mathcal{V}_1 + \mathcal{V}_2 \\ &= 25,5 + 332 = \underline{\underline{58,7 \text{ cm}^3}} \end{aligned}$$

Donc : le volume total du cône est $58,7 \text{ cm}^3$

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$$\mathcal{A} = 4\pi R^2 = 92,16\pi \text{ dm}^2$$

$$R^2 = \frac{92,16\pi}{4\pi} = 23,04$$

$$R = \sqrt{23,04} = \underline{\underline{4,8 \text{ dm}}}$$

$$\begin{aligned} \mathcal{V} &= \frac{4}{3}\pi R^3 = \frac{4}{3} \times \pi \times 4,8^3 \\ &= 147,456\pi \\ &\approx \underline{\underline{463 \text{ dm}^3}} \end{aligned}$$