

Exercice 1

$$1) V_1 = \pi r^2 \times h = \pi \times 1^2 \times 8 = \underline{\underline{8\pi \text{ cm}^3}}$$

$$V_2 = \frac{1}{2} \times \frac{4}{3} \pi R^3 = \frac{1}{2} \times \frac{4}{3} \times \pi \times 3^3 = \frac{27 \times 4}{2 \times 3} \pi = \underline{\underline{18\pi \text{ cm}^3}}$$

$$2) a) V_{c_9} = \frac{\pi r^2 \times h}{3} = \frac{\pi \times 3^2 \times 9}{3} = \underline{\underline{27\pi \text{ cm}^3}}$$

$$b) V_{c_3} = \frac{\pi r^2 \times h}{3} = \frac{\pi \times 1^2 \times 3}{3} = \underline{\underline{\pi \text{ cm}^3}}$$

$$c) V_3 = V_{c_9} - V_{c_3} = 27\pi - \pi = \underline{\underline{26\pi \text{ cm}^3}}$$

$$3) V = V_1 + V_2 + V_3 = 8\pi + 18\pi + 26\pi = 52\pi \text{ cm}^3 \approx \boxed{163363 \text{ mm}^3}$$

Exercice 2

a) Volume Perdu = Volume Cube - Volume Boule

$$= 10^3 - \frac{4}{3} \pi \times 5^3 = 1000 - 523,6 \text{ cm}^3 \approx 476 \text{ cm}^3$$

b) D'après le Théorème de Pythagore, $OA^2 = h^2 + o_1A^2$

$$\text{Donc } h^2 = OA^2 - o_1A^2 = 5^2 - 2,5^2 = 18,75.$$

$$\text{Donc } h = \sqrt{18,75} \approx 4,33 \text{ cm} \approx 43 \text{ mm}$$