Tarefa básica 1

11

$\frac{2\pi R}{2} = \frac{40\pi}{2} = 20\pi$

$2\pi R = 20\pi$

$R = 10$

$10^2 + H^2 = 20^2$

$H^2 = 400 - 100$

$H^2 = 300$

$H = 10\sqrt{3}$ (A)

2)

$Ab \cdot \frac{12}{3} = 64\pi$ $\quad Ab = \pi \cdot r^2$

$12\,Ab = 192\pi$ $\quad \pi \cdot r^2 = 16\pi$

$Ab = 16\pi$ $\quad r^2 = 16$

$r = 4$

$g^2 = 4^2 + 12^2$

$g^2 = 16 + 144$

$g^2 = 160$

$g = 4\sqrt{10}$ (B)

3)

4)

5)

$V = \frac{1}{2} \cdot V_{cilindro} - V_{cone}$

$V = \frac{1}{2} \cdot \pi \cdot 3^2 \cdot 10 - \frac{1}{3} \cdot \pi \cdot 1^2 \cdot 3 \rightarrow V = 44\pi$

6)

$V_C = \frac{1}{3} A_b \cdot h$

$V_P = A_b \cdot \frac{2}{3} h$

$\frac{V_P}{V_C} = \frac{A_b \cdot \frac{2}{3} h}{\frac{1}{3} A_b \cdot h} = 2$ (A)

7)

$V_{ABD} = \frac{\pi 1^2 \cdot 1}{3} = \frac{\pi 1^3}{3}$

$V_{BCD} = \pi 1^3 - \frac{\pi 1^3}{3} \rightarrow V_{BCD} = \frac{2\pi 1^3}{3}$

$\frac{V_{ABD}}{V_{BCD}} = \frac{\pi 1^3}{3} \cdot \frac{3}{2\pi 1^3} = \frac{1}{2}$ (E)

Tarefa Básica 2

1)

$$V = \frac{\pi r^2}{3} \cdot h \rightarrow V = \frac{\pi \cdot 3^2}{3} \cdot 8 \rightarrow V = 24\pi \text{ cm}^3$$

$$\frac{V}{v} = \frac{H^3}{h^3} \rightarrow \frac{24\pi}{\frac{1}{2}\pi} = \frac{8^3}{h^3} \rightarrow 2 \div \frac{8^3}{h^3} \rightarrow 2h^3 = 8^3 \rightarrow$$

$$h^3 = \frac{512}{2} \rightarrow h = \sqrt[3]{256} \rightarrow h = \sqrt[3]{2^3 \cdot 2^3 \cdot 2^2} \rightarrow h = 2 \cdot 2\sqrt[3]{4} = 4\sqrt[3]{4}\text{ cm}$$

(E)

2)

$$v = \left(\frac{16}{20}\right)^3$$
$$= \left(\frac{4}{5}\right)^3$$
$$= \frac{64}{125}$$
$$= \frac{64V}{125}$$

$$V = \frac{64V}{125} + V'$$
$$V - \frac{64V}{125} = V'$$
$$V' = \frac{61V}{125}$$
$$V' = 0,488V \cong 50\% \quad (C)$$

3)

4)

5)

$V = \pi \cdot \frac{4}{3} \cdot (5^2 + 5 \cdot 2 + 2^2)$

$V = \pi \cdot \frac{4}{3} \cdot (25 + 10 + 4)$

$V = 1,3\pi \cdot 39$

$V = 50,7\pi \ m^2$

6)

$h^2 + 3^2 = 7^2$

$h^2 + 9 = 49$

$h^2 = 49 - 9$

$h^2 = 40$

$h = \sqrt{40}$

$h = 6,3 \ cm$

$V = \pi \cdot \frac{6,3}{3} \cdot (7^2 + 7 \cdot 3 + 3^2)$

$V = \pi \cdot 2,1 \cdot (49 + 21 + 9)$

$V = 2,1\pi \cdot 79$

$V = 165,9\pi \ cm$

7)

$\frac{R}{H} = \frac{r}{h} \Rightarrow r = \frac{Rh}{H}$

$V_{cg} = \frac{\pi R^2 H}{3}$

$V_{cp} = \frac{\pi \left(\frac{Rh}{H}\right)^2 h}{3} = \frac{\pi R^2 h^3}{3H^2}$

$V_{TC} = V_{cg} - V_{cp} = \frac{\pi R^2 H}{3} - \frac{\pi R^2 h^3}{3H^2} = \frac{\pi R^2 (H^3 - h^3)}{3H^2}$

$$\frac{\pi R^2 h^3}{3H^2} = \frac{\pi R^2 (H^3 - h^3)}{3H^2} \rightarrow \pi R^2 h^3 = \pi R^2 (H^3 - h^3) \rightarrow$$

$$h^3 = H^3 - h^3 \rightarrow 2h^3 = H^3 \rightarrow h^3 = \frac{H^3}{2} \rightarrow h = \frac{\sqrt[3]{H^3}}{\sqrt[3]{2}} \rightarrow$$

$$h = \frac{\sqrt[3]{H^3} \cdot \sqrt[3]{2^2}}{\sqrt[3]{2} \cdot \sqrt[3]{2^2}} \rightarrow h = \frac{H\sqrt[3]{4}}{2} \quad (A)$$