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Nº 03

CT11350

Tarefa Básica - Cilindros

$$1. V_L = \pi \cdot 10^2 \cdot 40 \rightarrow V_L = 4000\pi \text{ cm}^3$$

$$x = 4000\pi \cdot \frac{1}{5} \rightarrow x = 800\pi \text{ cm}^3$$

$$800\pi = \pi \cdot 5^2 \cdot h \rightarrow h = \frac{800\pi}{25\pi} \rightarrow h = 32 \text{ cm}$$

Alternativa A

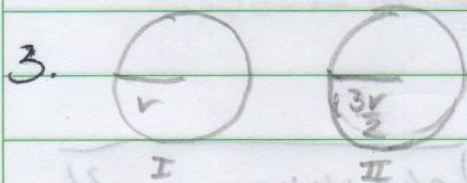
$$2. (C1) V = 2\pi \cdot R^3$$

$$(C2) V = \pi r^2 \cdot 16r \rightarrow V = 16\pi \cdot r^3$$

$$\frac{V_L}{V_2} = \frac{1}{27} \rightarrow \frac{2\pi \cdot r^3}{16\pi \cdot r^3} = \frac{1}{27} \rightarrow \left(\frac{R}{r}\right)^3 = \frac{16}{54} \rightarrow \frac{R}{r} = \sqrt[3]{\frac{8}{27}} = \frac{2}{3}$$

$$\frac{R}{r} = \frac{2}{3}$$

Alternativa E



$$(I) At = 2\pi \cdot r^2 + 2\pi \cdot r \cdot h \quad \left\{ \begin{array}{l} 16\pi = \pi r^2 \cdot h \rightarrow r^3 h = 16 \end{array} \right.$$

$$(II) Al = 2\pi \cdot \frac{3r}{2} \cdot h \rightarrow Al = 3\pi r \cdot h$$

$$3\pi \cdot r \cdot h = 2\pi \cdot r^2 + 2\pi \cdot r \cdot h \rightarrow \pi \cdot r \cdot h = 2\pi r^2 \rightarrow r = \frac{h}{2}$$

$$\left(\frac{h}{2}\right)^2 \cdot h = 16 \rightarrow \frac{h^2}{4} \cdot h = 16 \rightarrow h^3 = 64 \rightarrow h = 4$$

Alternativa D

$$4. \pi \cdot (r+12)^2 \cdot 4 = \pi r^2 \cdot (4+12) \Rightarrow \pi$$

$$\pi (r^2 + 24r + 144) \cdot 4 = \pi \cdot 16r^2$$

$$4r^2 + 96r + 576 = 16r^2$$

$$12r^2 - 96r - 576 = 0 \Rightarrow r^2 - 8r - 48 = 0$$

$$S: 12 + (-4) = 8$$

$$x' = 12 \text{ cm}$$

$$P: 12 \cdot (-4) = (-48) \quad x'' = -4 \text{ não convém}$$

Alternativa A)

$$5. V = \pi \cdot 20^2 \cdot 0,08$$

$$V = \pi \cdot 400 \cdot 0,08 \Rightarrow V = 32\pi \Rightarrow V \approx 32 \cdot 3,14$$

$$V \approx 100,48 \text{ cm}^3$$

Alternativa B)

Tarefa Básica - Pirâmides

$$1. Ab = x \cdot 2x \Rightarrow Ab = 2x^2 \text{ cm}^2$$

$$48 = \frac{1}{3} \cdot 2x^2 \cdot 8 \Rightarrow 48 = \frac{16}{3}x^2 \Rightarrow 144 = 16x^2$$

$$x = \sqrt{9} \Rightarrow x = 3 \text{ cm}$$

Alternativa C)

$$2. m^2 = 30^2 + 40^2 \Rightarrow m^2 = 900 + 1600 \Rightarrow m = \sqrt{2500}$$

$$m = 50 \text{ mm}$$

$$At = 80(80 + 100) \Rightarrow At = 80 \cdot 180 \Rightarrow At = 14400 \text{ mm}^2$$

Alternativa E)

$$3. m = \sqrt{\frac{2}{2}} \cdot \sqrt{\frac{3}{2}} \Rightarrow m = \sqrt{\frac{6}{2}} \text{ cm}$$

$$\left(\frac{\sqrt{6}}{2}\right)^2 = h^2 + \left(\frac{\sqrt{2}}{2}\right)^2 \Rightarrow \frac{6}{4} = h^2 + \frac{2}{4} \Rightarrow h^2 = \frac{6}{4} - \frac{2}{4}$$

$$h = \sqrt{1} \Rightarrow h = 1 \text{ cm}$$

Alternativa C)

$$4. Ab = \frac{3\sqrt{3} \cdot a^2}{2}$$

$$V = \frac{1}{3} \cdot \frac{3\sqrt{3} \cdot a^2}{2} \cdot 6\sqrt{3} \rightarrow V = \frac{3 \cdot 3 \cdot a^2 \cdot 6}{3 \cdot 2} \rightarrow \boxed{V = \frac{3a^2 \cdot 6}{2}}$$

Alternativa A)

5.

$$Ab = \frac{3\sqrt{3} \cdot 4^2}{2} \rightarrow Ab = \frac{3\sqrt{3} \cdot 16}{2} \rightarrow Ab = 24\sqrt{3} \text{ cm}^2$$

$$V = \frac{1}{3} \cdot 24\sqrt{3} \cdot 6\sqrt{3} \rightarrow V = \frac{144 \cdot 3}{3} \rightarrow \boxed{V = 144 \text{ cm}^3}$$

Alternativa D)

$$6. Ab = \frac{3\sqrt{3} \cdot 1^2}{2} \rightarrow Ab = \frac{3\sqrt{3}}{2} \text{ cm}^2$$

$$V = \frac{1}{2} \cdot \frac{3\sqrt{3}}{2} \cdot 8 \rightarrow \boxed{V = 4\sqrt{3} \text{ cm}^3} \quad \boxed{\text{Alternativa A)}$$

7. V_{pirâmide}: $a^2 \cdot h$

$$V_{\text{prisma}}: \frac{1}{3} \cdot 4a^2 \cdot h \rightarrow \frac{4a^2 \cdot h}{3}$$

$$\frac{a^2 \cdot h}{4a^2 \cdot h} \rightarrow a^2 \cdot h \cdot \frac{3}{4a^2 \cdot h} \rightarrow \boxed{\frac{3}{4}} \quad \boxed{\text{Alternativa A)}$$

$$8. Al = a^2 \sqrt{3} \rightarrow 6\sqrt{3} = a^2 \sqrt{3} \rightarrow a = \sqrt{6} \text{ cm}^2$$

$$h = \sqrt{6} \cdot \frac{\sqrt{6}}{3} \rightarrow h = \frac{6}{3} \rightarrow \boxed{h = 2 \text{ cm}}$$

Alternativa A)