

INSTITUTO FEDERAL

São Paulo

Câmpus Cubatão

TAREFA BÁSICA 31: ÁREA DE PIRÂMIDES E CILINDROS

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Exercício 1, 2, 3 e 4(parte 1):

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

$\frac{4000\pi}{5} = 800\pi$

$V = \pi \cdot S^2 \cdot h$ $2Sh = 800$
 $V = 800\pi \text{ cm}^3$ h

② $\frac{V_1}{V_2} = \frac{1}{27} \Rightarrow \frac{\pi (R_1)^2 \cdot R_1}{\pi (R_2)^2 \cdot R_2} = \frac{1}{27}$

$\frac{(R_1)^2 \cdot 2R_1}{(R_2)^2 \cdot 16R_2} = \frac{1}{27}$ $\left(\frac{R_1}{R_2}\right)^2 = \frac{8}{27}$

$\frac{R_1}{R_2} = \frac{2}{3}$

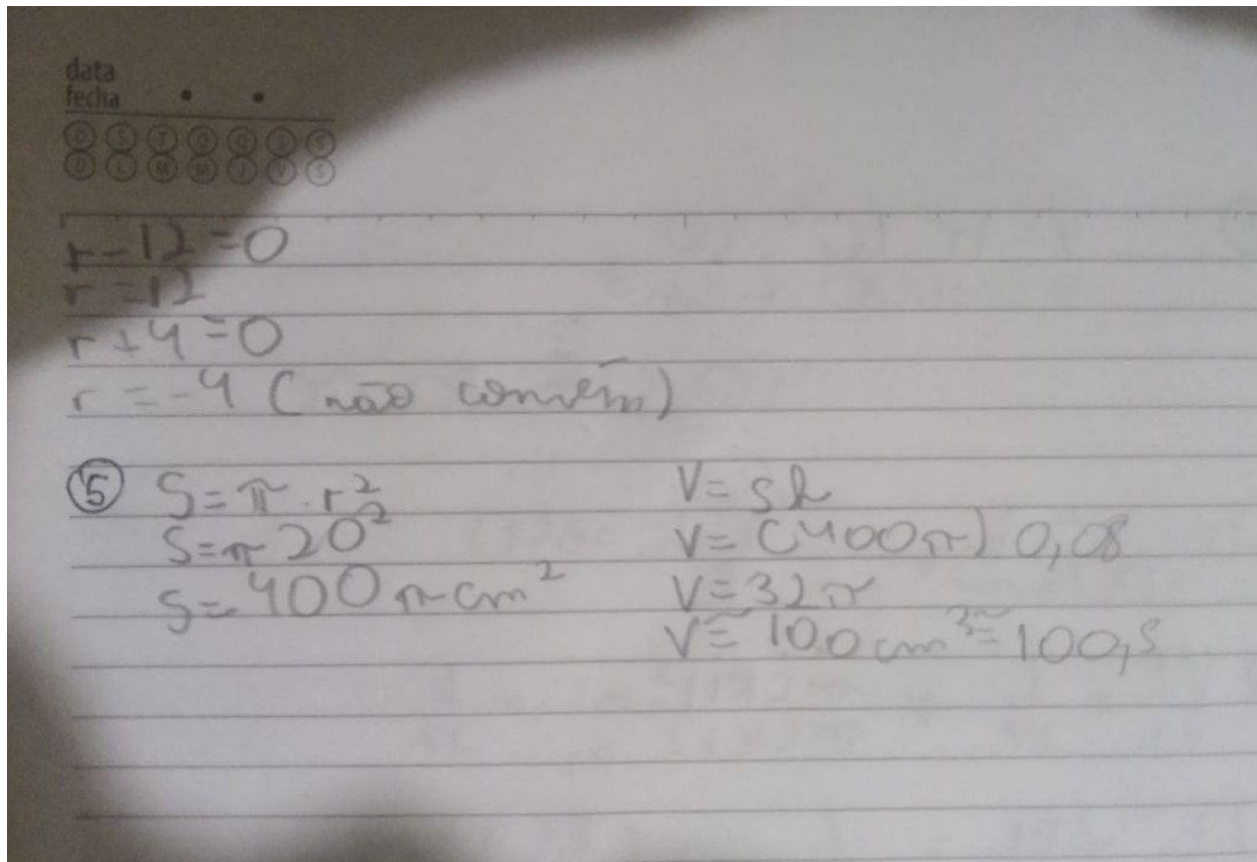
③ $2\pi \cdot C_1 \cdot S \cdot h = 2\pi r(Cr + h)$
 $3h = 2r + 2h + h = 2r$

$V_1 = 16\pi$ $\pi \frac{R^2}{4} h = 16h + \frac{h^2}{4} = 16$ $h = 4 \text{ m}$

④ $V = \pi r^2 h$ $\pi (r+12)^2 \cdot 4 = \pi r^2 (4+12)$
 $V = 4r^2 \pi$ $\pi (r^2 + 24r + 144) \cdot 4 = \pi r^2 \cdot 16$
 $\pi (r^2 + 24r + 144) = \pi r^2$

$4r^2 + 96r + 576 = 16r^2$ $r^2 - 12r - 144 = 0$
 $12r^2 - 4r - 96r - 576 = 0$ $(r-12)(r+12) = 0$
 $12r^2 - 96r - 576 = 0$

Exercício 4(parte 2) e 5:



Exercício 1, 2 e 6:

$$\begin{aligned} \textcircled{1} \quad A_b &= b \cdot h \\ A_b &= x \cdot 2x \\ A_b &= 2x^2 \end{aligned} \quad \begin{aligned} V &= \frac{A_b \cdot h}{3} \\ 48 &= \frac{2x^2 \cdot 8}{3} \\ 16x^2 &= 983 \\ x^2 &= \frac{983}{16} \\ x^2 &= 33 \\ x &= 3 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad x^2 &= 30^2 + 40^2 \\ x^2 &= 900 + 1600 \\ x^2 &= 2500 \\ x &= \sqrt{2500} \\ x &= 50 \end{aligned} \quad \begin{aligned} A &= \frac{80 \cdot 50}{2} = 2000 \\ 4 \cdot 200 &= 8000 \end{aligned}$$

$$\begin{aligned} 180 \cdot 80 &= 5400 \\ \text{at} &= 8000 + 5400 = 13400 \end{aligned} \quad \begin{aligned} &\text{Cores lat.} \\ &\text{pirâmide) } \end{aligned}$$

④

$$\begin{aligned} \textcircled{6} \quad A_b &= \frac{61^2 \sqrt{3}}{4} \\ &= \frac{6\sqrt{3}}{4} \\ &= \frac{3\sqrt{3}}{2} \end{aligned} \quad \begin{aligned} V &= \left(\frac{1}{3}\right) \cdot 8 \cdot 3\sqrt{3} \cdot 12 \\ V &= 4\sqrt{3} \text{ cm}^3 \end{aligned}$$

Exercício 7 e 8:

$$\textcircled{7} \quad Ab = \sqrt{3}^2 = 3$$
$$V = \frac{Ab \cdot h}{3} = \frac{3 \cdot 5}{3} = 5$$

$$Ab = (2a)^2 = 4a^2 \quad Ab = a^2$$
$$V = \frac{4a^2 \cdot h}{3} \quad V_2 = \frac{a^2 \cdot h_2}{3}$$

$$\frac{4a^2 \cdot h}{3} = \frac{a^2 \cdot h_2}{3} \quad \frac{h_1}{h_2} = \frac{3a^2}{4a^2}$$

$$\frac{h_1}{h_2} = \frac{3}{4}$$

$$\textcircled{8} \quad a\sqrt{3} = \frac{a^2 \sqrt{3}}{6\sqrt{3}} \quad a = \sqrt{6}$$

$$h = \frac{a\sqrt{6}}{3} \quad h = \frac{\sqrt{6} \cdot \sqrt{6}}{3}$$
$$h = \frac{\sqrt{36}}{3}$$
$$h = \frac{6}{3} = 2$$