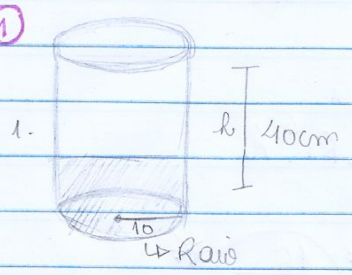
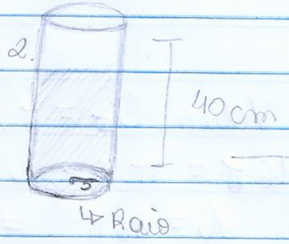
# Tarefa básica

## CILINDROS E PIRÂMIDES

→ CILINDROS

(1)




→ $\frac{1}{5}$ de sua capacidade

$V_1 = \pi \cdot R^2 \cdot h$

$V_1 = \pi \cdot 10^2 \cdot 40$

$V_1 = 100 \cdot 40 \cdot \pi$

$V_1 = 4000\pi \text{ cm}^2$

$V_2 = \frac{1}{5} \cdot V_1$

$\pi \cdot r^2 \cdot h = \frac{1}{5} \cdot 4000\pi$

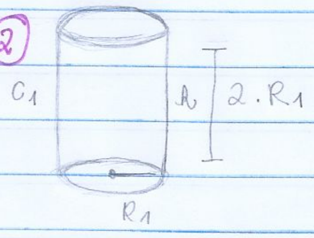
$\pi \cdot 5^2 \cdot h = 800\pi$

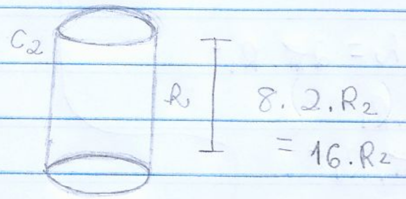
$h = \frac{800\cancel{\pi}}{25\cancel{\pi}}$

$h = 32 \text{ cm}$

Alternativa A)

(2)




$d = 2.R$

$\frac{\text{Volume } C_1}{\text{Volume } C_2} = \frac{1}{27}$

$\frac{\cancel{\pi} \cdot R_1^2 \cdot \cancel{2} R_1}{\cancel{\pi} \cdot R_2^2 \cdot \cancel{16} \cdot R_2} = \frac{1}{27}$

$\frac{R_1^3}{8 \cdot R_2^3} = \frac{1}{27}$

$\frac{R_1^3}{R_2^3} = \frac{8}{27}$

$\sqrt[3]{\frac{R_1^3}{R_2^3}} = \sqrt[3]{\frac{8}{27}}$

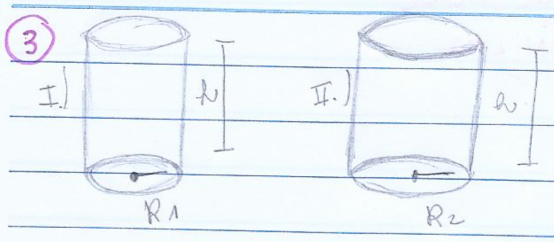
$\frac{\sqrt[3]{R_1^3}}{\sqrt[3]{R_2^3}} = \frac{\sqrt[3]{2^3}}{\sqrt[3]{3^3}}$

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

Alternativa E)

tilibra

3




aumento de 50%

100% + 50%

150%

$R_2 = 150\% \cdot R_1$

$R_2 = \frac{15\cancel{0}}{10\cancel{0}} \cdot R_1$

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

Volume $C_I = \pi \cdot R_1^2 \cdot h$

$16\pi = \pi \cdot R_1^2 \cdot h$

$h = \frac{16\pi}{\pi \cdot R_1^2} = \frac{16}{R_1^2}$ *

$AL C_2 = AT C_1$

$2\pi \cdot R_2 \cdot h = 2\pi \cdot R_1 \cdot h + 2\pi \cdot R_1^2$

$\cancel{2}\pi \cdot \frac{3}{\cancel{2}} \cdot R_1 \cdot h = 2\pi \cdot R_1 \cdot h + 2\pi \cdot R_1^2$

$3\pi \cdot R_1 \cdot h - 2\pi \cdot R_1 \cdot h = 2\pi \cdot R_1^2$

$1\pi \cdot R_1 \cdot h = 2\pi \cdot R_1^2$

$\pi \cdot \cancel{R_1} \cdot \frac{16}{\cancel{R_1}^2} = 2\pi \cdot R_1^2$

$\frac{16\pi}{R_1} = 2\pi \cdot R_1^2$

$R_1^3 = \frac{\cancel{16}\cancel{\pi}}{\cancel{2}\cancel{\pi}}$

$R_1 = \sqrt[3]{8}$

$R_1 = 2$

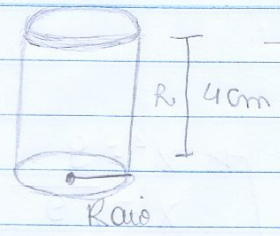
* $h = \frac{16}{R_1^2}$

$h = \frac{16}{2^2}$

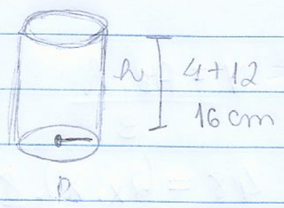
$h = \frac{16}{4} = 4$

Alternativa D)

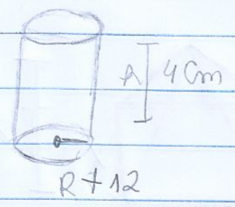
4)




→ podendo ser:




OU




$V_1 = \pi . R^2 . 16$

$V_2 = \pi . (R+12)^2 . 4$

$\cancel{\pi} . R^2 . \cancel{16} = \cancel{\pi} . (R+12)^2 . \cancel{4}$

$(R+12)^2 = 4 . R^2$

$R^2 + 24R + 144 = 4R^2$

$-3R^2 + 24R + 144 = 0 \quad (:-3)$

$R^2 - 8R - 48 = 0$

$\Delta = b^2 - 4.a.c$

$\Delta = (-8)^2 - 4.1.(-48)$

$\Delta = 64 + 192$

$\Delta = 256$

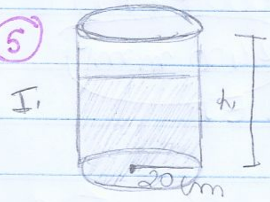
$x = \frac{-b \pm \sqrt{256}}{2.a}$ $\quad x' = \frac{8+16}{2} = 12\,cm$

$x = \frac{8 \pm 16}{2}$ $\quad x'' = \frac{8-16}{2} = -4\,cm$

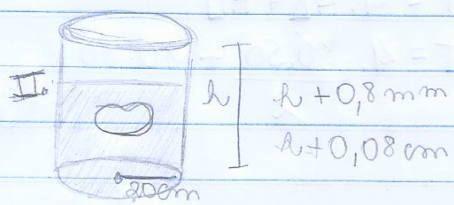
NÃO CONVÉM

Alternativa A)

5)




→




$V_{pedra} = V_I - V_{II}$

$V_p = \pi . 20^2 . (h + 0,08) - \pi . 20^2 . h$

$V_p = \pi . 400 . (\cancel{h} + 0,08 - \cancel{h})$

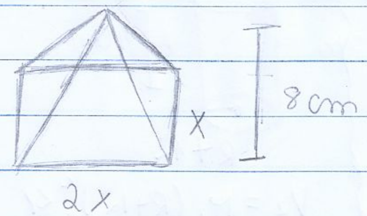
$V_p = \pi . 400 . \frac{8}{100} = 32\pi$

$V_p = 32 . 3,14$

$V_p = 100,5\,cm^3$ $\quad$ Alternativa B)

→ PIRÂMIDES

1




$V = \frac{A_B \cdot h}{3}$

$48 = \frac{(2x \cdot x) \cdot 8}{3}$

$144 = 16x^2$

$x^2 = \frac{144}{16}$

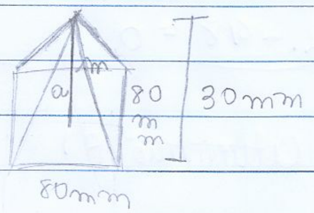
$x^2 = 9$

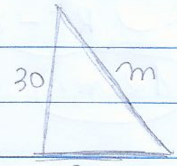
$x = \sqrt{9}$

$x = 3$

Alternativa C)

2




$\frac{80}{2} = 40$

$m^2 = 30^2 + 40^2$

$m^2 = 900 + 1600$

$m = \sqrt{2500}$

$m = 50mm$

$AT = 4 \cdot A_\Delta + A_\square$

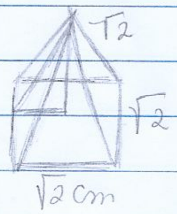
$AT = 4 \cdot \frac{80 \cdot 50}{2} + 80 \cdot 80$

$AT = 8000 + 6400$

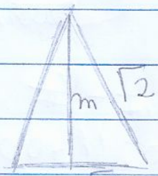
$AT = 14400 \ mm^2$

Alternativa E)

3




→ face lateral



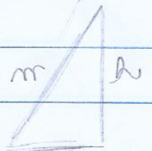

$\frac{\sqrt{2}}{2}$

$(\sqrt{2})^2 = m^2 + \left(\frac{\sqrt{2}}{2}\right)^2$

$2 = m^2 + \frac{2^{:2}}{4^{:2}}$

$2 - \frac{1}{2} = m^2$

$m^2 = \frac{4-1}{2} = \frac{3}{2}$ //




$\frac{\sqrt{2}}{2}$

$m^2 = h^2 + \left(\frac{\sqrt{2}}{2}\right)^2$

$h^2 = \frac{3}{2} - \frac{2^{:2}}{4^{:2}}$

$h^2 = \frac{3}{2} - \frac{1}{2}$

$h^2 = \frac{2}{2}$

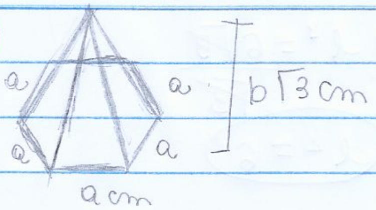
$h = \sqrt{1}$

1 cm

Alternativa C)

tilibra

(4)

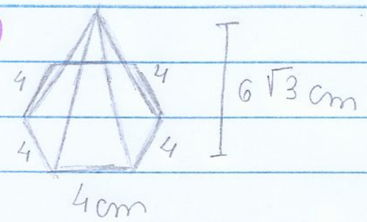



$V = \frac{1}{\cancel{3}} \cdot \cancel{6} \cdot \frac{a^2\sqrt{3}}{4} \cdot b\sqrt{3}$

$V = \frac{\cancel{2} \cdot a^2 \cdot b \cdot (\sqrt{3})^2}{\cancel{4}}$

$V = \frac{3a^2 \cdot b}{2}\ cm^2$ Alternativa A)

(5)

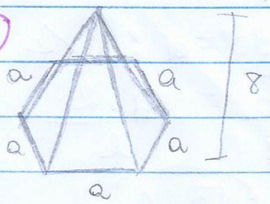



$V = \frac{1}{\cancel{3}} \cdot \cancel{6} \cdot \frac{\cancel{4} \cdot 4\sqrt{3}}{\cancel{4}} \cdot 6\sqrt{3}$

$V = 2 \cdot 4 \cdot 6 \cdot (\sqrt{3})^2$

$V = 48 \cdot 3 = 144\ cm^3$ Alternativa D)

(6)




Perímetro ⬡ = 6 cm

$6a = 6$

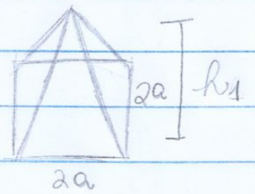
$a = \frac{6}{6} = 1\ cm$ → $V = \frac{1}{3} \cdot \frac{6 \cdot 1^2\sqrt{3}}{4} \cdot 8$

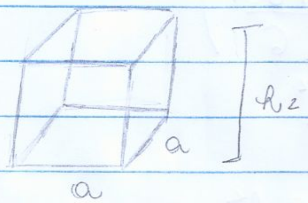
$V = 2 \cdot 2 \cdot \sqrt{3}$

$V = 4\sqrt{3}\ cm^3$

Alternativa A)

(7)



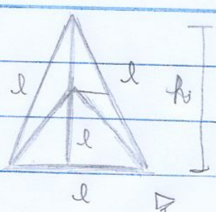

* $V_{pirâmide} = V_{prisma}$

$\frac{1}{3} \cdot 2a \cdot 2a \cdot h_1 = a \cdot a \cdot h_2$

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

Alternativa A)

(8)



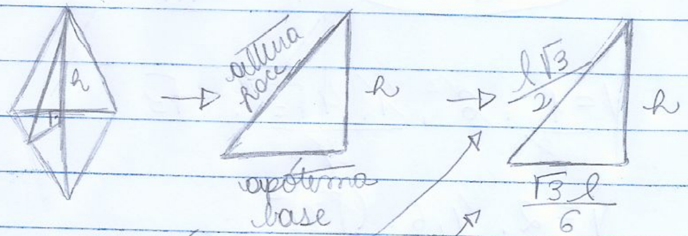

$A_T = 6\sqrt{3}$

$4 \cdot A_\Delta = 6\sqrt{3}$

$\cancel{4} \cdot \frac{l^2\sqrt{3}}{\cancel{4}} = 6\sqrt{3} \rightarrow l^2 = \frac{6\sqrt{3}}{\sqrt{3}}$

$l^2 = 6$

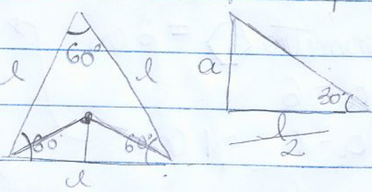
Triângulo equilátero




$* \; h_\Delta = \frac{l\sqrt{3}}{2}$ $\quad * \; a_\Delta = \frac{\sqrt{3}\,l}{6}$

(Triângulo equilátero)

cálculo do apótema =




$tg\,30° = a : l/2$

$\frac{\sqrt{3}}{3} = \frac{a \cdot 2}{l}$

$a = \frac{\sqrt{3} \cdot l}{6}$

$\left(\frac{l\sqrt{3}}{2}\right)^2 = h^2 + \left(\frac{\sqrt{3}\,l}{6}\right)^2$

$h^2 = \frac{3l}{4} - \frac{3l^2}{36}$

$h^2 = \frac{27l^2 - 3l^2}{36}$

$h^2 = \frac{\cancel{24}\,l^2}{\cancel{36}} \rightarrow h = \sqrt{\frac{36}{9}} = \frac{6}{3} = 2m$

Alternativa A)