Tarefa Básica - Cones

Q1 - $R = 20\ in$, $R = ?$

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

$R_{Base} = \frac{20}{2} = 10$

$R_{Omitido} = 20 = g$

$g^2 = h^2 + R_{Base}^2$

$20^2 = h^2 + 10^2$

$h^2 = 400 - 100$

$h = \sqrt{300}$

$\boxed{h = 10\sqrt{3}}$

(A)

Q2 - $h = 12\ cm$, $V = 64\pi\ cm^3$, geratriz = ?

$g^2 = R^2 + h^2$

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

$g^2 = 16 + 144$

$g = \sqrt{160}$

$\boxed{g = 4\sqrt{10}}$

$V = \frac{1}{3}\pi R^2 . h$

$64\pi = \frac{1}{3}\pi . R^2 . 12$

$R^2 = \frac{64}{4}$

$R = \sqrt{16}$

$R = 4$

(B)

Q3 - $R_{Base} = ?$, $A_{Base} = 36\pi\ cm^2$, Volume = ?

$A_{Base} = \pi R^2$

$36\pi = \pi R^2$

$R = \sqrt{36}$

$R = 6 = h$

$V = \frac{1}{3}\pi R^2 . h$

$V = \frac{1}{3}\pi . 6^2 . 6$

$V = \pi . 6^2 . 2$

$\boxed{V = 72\pi}$

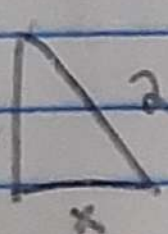
(A)

Q4 -

Hipotenusa = 2cm

$R = 1$

$h = 1$



$V = 2 . V_{cone}$

$V = 2 . (\frac{1}{3}\pi R^2 . h)$

$V = 2 . (\frac{1}{3}\pi 1 . 1)$

$\boxed{V = \frac{2\pi}{3}}$

(E)

05- $R_{cilindro} = 3$ | $V_{cilindro} = \pi R^2 . h$

$h_{cilindro} = 10$ | $V_{cilindro} = \pi . 3^2 . 10 = 90\pi$ ... ①

$h_{cone} = 3$

$R_{cone} = 1$ | $V_{cone} = \frac{1}{3} \pi R^2 . h$

$V_{cone} = \frac{1}{3} \pi . 1^2 . 3$ (E)

$\frac{V_{cilindro} - V_{cone}}{2}$ | $V_{cone} = \pi$ ... ②

$45\pi - \pi = \boxed{44\pi}$

06- $A_{Base\ Prisma} = A_{Base\ cone}$ | $h_{prisma} = \frac{2}{3} h_{cone}$

$Razão = \frac{V_{prisma}}{V_{cone}} = \frac{(2\pi R^2 . h . 2)/3}{(\pi R^2 . h . 2)/3} = \frac{2\pi R^2 . h2}{3} \cdot \frac{3}{\pi R^2 . h . 2}$

$\boxed{Razão = 2}$ (A)

07-

$\frac{V_{ABC}}{V_{cilindro} - V_{ABC}} = \frac{\frac{1}{3}\pi R^2 . h}{\pi R^2 . h - \frac{1}{3}\pi R^2 . h} = \frac{\left(\frac{2\pi R^2 . h}{3}\right)}{\frac{3\pi R^2 . h - \pi R^2 . h}{3}} = \frac{\pi R^2 h}{3} \cdot \frac{3}{2\pi R^2 h}$ (X)

$Razão = \frac{1}{2}$ (E)

Tarefa Básica - Tranquer

01- $h_{cone} = 8\,cm$ | $V_{cone} = \frac{1}{3} \cdot \pi \cdot 3^2 \cdot 8$

$R_{cone} = 3\,cm$ | $V_{cone} = \frac{1}{3} \cdot \pi \cdot 9 \cdot 8$

$\frac{V}{v} = \frac{H^3}{h^3} \rightarrow \frac{24\pi}{12\pi} = \frac{8^3}{h^3}$ | $V_{cone} = 24\pi\ cm^3$ (12π cabe líquido)

$2 = \frac{512}{h^3}$

$h = \sqrt[3]{256}$ | $h = 4\sqrt[3]{4}$ (E)

02-

$\frac{V_{cone}}{V_{copo}} = \left(\frac{16}{20}\right)^3 = \left(\frac{4}{5}\right)^3 = \frac{64}{125}$ | $V_{cone} = \frac{64}{125} V_{copo}$

$V_{copo} = V_{cone} + V_{espuma}$ | $V_{copo} = \frac{64}{125} V_{copo} + V_{espuma}$

$V_{espuma} = \frac{61}{125} V \simeq 0{,}48\,V = 48\%$ (C)

03- $\frac{\frac{1}{2}V}{V} = \left(\frac{h}{H}\right)^3 = \sqrt[3]{\frac{1}{2}} = \frac{h}{H}$ | $\frac{1}{\sqrt[3]{2}} \cdot \frac{\sqrt[3]{2^2}}{\sqrt[3]{2^2}}$

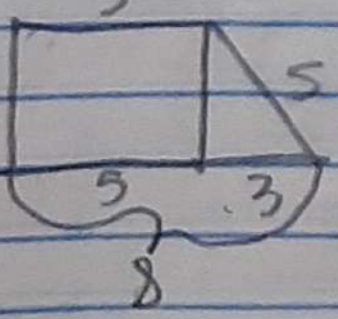
$\frac{\sqrt[3]{4}}{2}$ ou $h = \frac{H\sqrt[3]{4}}{2}$

04- Apótema B = 8 cm

Apótema b = 5 cm

Apótema tronco = 5 cm

h tronco = ?



$5^2 = 3^2 + h^2$

$25 = 9 + h^2$

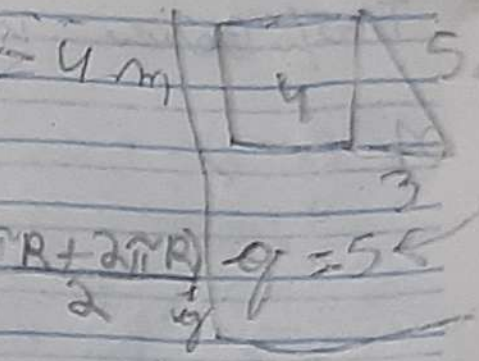
$h^2 = 25 - 9$

$h = \sqrt{16}$

$h = 4\,cm$

05- Raio da Base = 3m / 5m / h = 4m

Área total = ? / Volume = ?



$A_T = A_B + A_D + A_L = \pi R^2 + \pi R^2 + \frac{(2\pi R + 2\pi R)}{2} \cdot g$

$A_T = 25\pi + 4\pi + \frac{(6\pi + 4\pi)}{2} \cdot 5$

$A_T = 29\pi + 35\pi$

$\boxed{A_T = 64\pi\ m^2}$

$V_T = \frac{\pi h}{2}(R^2 + R_R + R^2)$

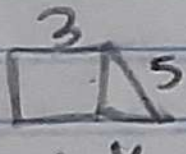
$V_T = \frac{\pi \cdot 4}{3} \cdot (25 + 10 + 4)$

$\boxed{V_T = 52\pi\ cm^3}$

06- Raio Base = 3 cm e 7 cm

$g = 5$ cm

$V = ?$



$g = 3$

$V_T = \pi(49 + 21 + 9)$

$V_T = 79\pi$

(D)

Q7-

$$\frac{R}{H} = \frac{r}{h} \rightarrow r = \frac{R_B}{H}$$

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

$$v_{cone} = \frac{\pi r^2 \cdot h}{3} = \frac{\pi \left(\frac{R_B}{H}\right)^2 \cdot h}{3} = \frac{\pi R^2 h^3}{3H^2}$$

$$V_{Tronco} = V - v = \frac{\pi R^2 H}{3} - \frac{\pi R^2 h^3}{3H^2}$$

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

$$V_{Tronco} = v_{cone}$$

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

$$2h^3 = H^3$$

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

(A)