Tarefa básica - Cones / Troncos

① $\frac{2\pi \cdot 20}{2}$

$\frac{40\pi}{2}$

20π

$2\pi R = 20\pi$

$2R = 20$

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

$R = 10$

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

$100 + h^2 = 400$

$100 - 400 = -h^2 \ (\cdot -1)$

$-100 + 400 = h^2$

$300 = h^2$

$h = \sqrt{300}$

$h = 10\sqrt{3}$ cm

alternativa "A"

② $64\pi = \frac{1}{3}\pi r^2 \cdot 12$

$64\pi = \pi r^2 \cdot 4$

$\frac{64\pi}{4} = \pi r^2$

$16\pi = \pi r^2$

$16 = r^2$

$\sqrt{16} = r$

$r = 4$

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

$g^2 = 144 + 16$

$g = \sqrt{160}$

$g = 4\sqrt{10}$

alternativa "B"

③ $Ab = \pi r^2$

$36\pi = \pi r^2$

$\sqrt{36} = r$

$r = 6$

$V = \frac{1}{3}\pi r^2 \cdot h$

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

$V = \frac{1}{3}\pi 36 \cdot 6$

$V = \pi 36 \cdot 2$

$V = 72\pi \ cm^3$

alternativa "A"

④ $\text{sen } 45° = \frac{CO}{2}$

$\frac{\sqrt{2}}{2} = \frac{CO}{2}$

$\sqrt{2} = CO$

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

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

$VT = 2 \cdot \frac{\pi}{3}$

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

alternativa "E"

⑤ $V' = \pi r^2 \cdot h$

$V' = \pi 3^2 \cdot 10$

$V' = \pi 9 \cdot 10$

$V' = 90\pi$

$V_{liq} = 45\pi - \pi$

44π

$V'' = \frac{1}{3}\pi 1^2 \cdot 3$

$V_i'' = \frac{1}{3}\pi \cdot 3$

$V'' = \pi$

$\frac{V_i}{2} = \frac{90\pi}{2} = 45\pi$

alternativa "E"

⑥ $V_c = \frac{1}{3} Ab \cdot h$

$V_p = Ab \cdot \frac{2}{3} h$

$\frac{V_p}{V_c} = \frac{Ab \cdot \frac{2}{3} K}{\frac{1}{3} \cdot Ab \cdot K} = \frac{\frac{2}{3}}{\frac{1}{3}} = \frac{6}{3} = 2$

alternativa "A"

⑦ $\frac{\frac{1}{3}\pi \cdot r^2 \cdot K}{\pi \cdot r^2 \cdot K} = \frac{1}{3}$

$\frac{\frac{1}{3}}{\frac{2}{3}} = \frac{3}{6} = \frac{1}{2}$

alternativa "E"

Tarefa básica - Troncos

① $\frac{8}{h} = K$ $\quad V_p = \frac{1}{2} V_g$ $\quad \frac{8}{h} = \sqrt[3]{2}$

$\frac{V_g}{V_p} = k^3$ $\quad \frac{V_g}{\frac{1}{2} V_g} = k^3$ $\quad \frac{8}{\sqrt[3]{2}} = x$

$k = \sqrt[3]{2}$ $\quad x = \frac{8}{\sqrt[3]{2}} \cdot \frac{\sqrt[3]{2^2}}{\sqrt[3]{2^1}}$

$x = \frac{8 \cdot \sqrt[3]{2^2}}{2}$

alternativa "E" $\quad x = 4\sqrt[3]{4}$

② $Ab = \pi \cdot r^2$

$V_g = \pi r^2 \cdot 20$

$V_p = \pi r^2 \cdot 16$

$V_p = \pi \left(\frac{4r}{5}\right)^2 \cdot 16$

$V_p = \pi r^2 \frac{256}{25}$

$\frac{r}{20} = \frac{r}{16}$

$16r = 20r$

$\frac{16r}{20} = r$

$r = \frac{16r^4}{20} = \frac{4r}{5}$

$V_g - V_p =$

$20r^2\pi - \left(\frac{256}{25}\right) \cdot r^2\pi = \frac{256}{25} \cdot \pi r^2$

$\frac{244}{25} : 20 = \frac{244}{500} = 0,488 \cong 50\%$

alternativa "C"

(3) $\frac{V_p}{V_g} = \frac{1}{2}$ $\quad \frac{r}{h} = \frac{\sqrt[3]{4}}{2}$ $\quad \boxed{r = \frac{h\sqrt[3]{4}}{2}}$

$\frac{1}{2} = k^3$

$k = \sqrt[3]{\frac{1}{2}} = \frac{1}{\sqrt[3]{2}} \cdot \frac{\sqrt[3]{2^2}}{\sqrt[3]{2^2}} = \frac{1\sqrt[3]{2^2}}{\sqrt[3]{2}\sqrt[3]{2}} = \frac{\sqrt[3]{4}}{\sqrt[3]{2 \cdot 2^1}} = \frac{\sqrt[3]{4}}{\sqrt[3]{2^{3+1}}} =$

$k = \frac{\sqrt[3]{4}}{2}$

(4) $5^2 = r^2 + 3^2$

$25 = r^2 + 9$

$25 - 9 = r^2$

$16 = r^2$

$\sqrt{16} = r$

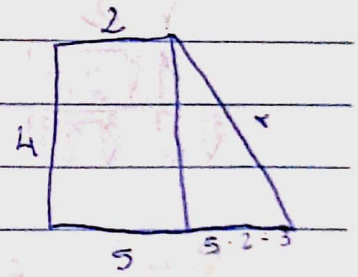
$\boxed{r = 4\ cm}$

(5) $r^2 = 3^2 + 4^2$

$r^2 = 9 + 16$

$r = \sqrt{25}$

$r = 5$



$A_t = \pi 2^2 + \pi 5^2 + \frac{(2\pi 2 + 2\pi 5).5}{2}$

$A_t = 4\pi + 25\pi + \frac{(4\pi + 10\pi).5}{2}$

$A_t = 29\pi + \frac{14\pi.5}{2}$

$A_t = 29\pi + 7\pi.5$

$A_t = 29\pi + 35\pi$

$\boxed{A_t = 64\pi}$

$V = \pi \cdot \frac{4}{3}(5^2 + 2^2 + 5.2)$

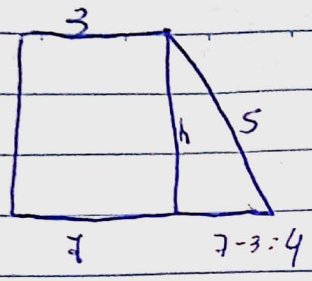
$V = \frac{4\pi}{3}(25 + 4 + 10)$

$V = \frac{4\pi}{3} \cdot 39$

$V = \frac{156\pi}{3}$

$\boxed{V = 52\pi}$

⑥



$5^2 = h^2 + 4^2$

$25 = h^2 + 16$

$25 - 16 = h^2$

$h = \sqrt{9}$

$h = 3$

$V = \frac{\pi 3}{3}(7^2 + 3^2 + 7.3)$

$V = \frac{3\pi}{3}(49 + 9 + 21)$

$V = \pi \cdot 79$

$\boxed{V = 79\pi}$

⑦ $\frac{V_p}{V_g} = \frac{1}{2}$

$\frac{1}{2} = k^3$

$k = \sqrt[3]{\frac{1}{2}} \cdot \frac{\sqrt[3]{2^2}}{\sqrt[3]{2^2}} =$

$\frac{1\sqrt[3]{2^2}}{\sqrt[3]{2}\sqrt[3]{2^2}} = \frac{\sqrt[3]{4}}{\sqrt[3]{2 \cdot 2^2}} =$

$\frac{\sqrt[3]{4}}{\sqrt[3]{2^3}} = \frac{\sqrt[3]{4}}{2}$

$\frac{h}{H} = k$

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

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

[alternativa "A"]