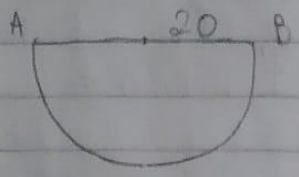
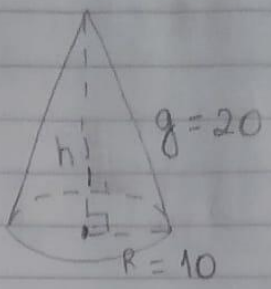
Nome: Gabriely Cristina Silva Santos CTII: 317

CONES:

① 



A setor = A_L =

$\frac{1}{2}\pi . 20^2 = \pi . R . 20$

$10 = R$

Pitágoras

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

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

$h^2 = 400 - 100$

$h^2 = 300$

$h = \sqrt{300}$

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

②

Volume do cone: $\frac{1}{3} AB.h$

$\frac{AB.12}{3} = 64\pi$

$12AB = 192\pi$

$AB = 16\pi$

Geratriz do cone:

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

$g^2 = 16 + 144$

$g^2 = 160$

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

Raio

$AB = \pi . r^2$

$\pi . r^2 = 16\pi$

$r^2 = 16$

$r = 4$

③ $AB = \pi R^2$

$36\pi = \pi R^2$

$R^2 = 36$

$R = 6\,cm$

$R = H = 6\,cm$

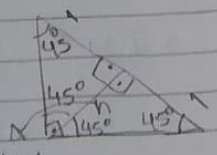
$V = \frac{36\pi . h}{3}$

$V = \frac{36\pi . 6}{3}$

$V = 36\pi . 2$

$\boxed{V = 72\pi}$ A1

④

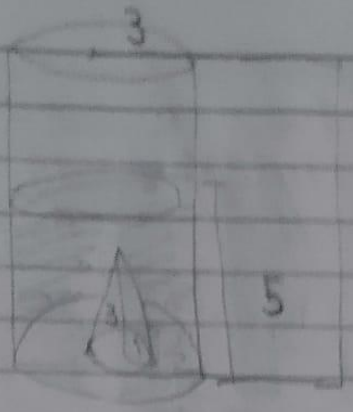


$V_T = 2 . V_{cone}$

$V_T = 2 . \pi . r^2 . h$

$\boxed{V_T = \frac{2\pi}{3}\,cm^3}$ E)

⑤



$V_{cilindro} = \pi \cdot R^2 \cdot h = 10$

$= \pi \cdot 3^2 \cdot 5 = 45\pi$

10 $V_{cone} = \frac{1}{3} \pi \cdot r^2 \cdot h =$

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

$V_{sobra} = 45\pi - \pi = \boxed{44\pi}$ E)

⑥ $V_{cone} = \frac{1}{3} AB \cdot h$

V_{prisma} com h do cone =

$V_{prisma} = AB \cdot \frac{2h}{3}$

Razão:

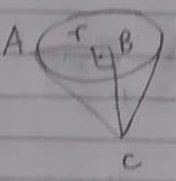
$\frac{V_{prisma}}{V_{cone}} = \frac{AB \cdot \frac{2}{3} h}{\frac{1}{3} AB \cdot h}$

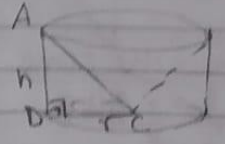
$= \boxed{2}$ A)

⑦ $r \rightarrow \overline{AB}$

$h \rightarrow BC$

V_{ABC} e $V_{ADC} \rightarrow V_{sólidos}$





$V_{ABC} = V_{cone} = \frac{1}{3} \pi \cdot r^2 \cdot h$

$V_{ADC} = V_{cilindro} - V_{cone} = \pi r^2 h - \frac{1}{3} \pi r^2 \pi =$

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

$\text{Razão} = \frac{\frac{1}{3} \pi \cdot r^2 \cdot h}{\frac{2\pi \cdot r^2 \cdot h}{3}} = \boxed{\frac{1}{2}}$ E)

TRONCOS:

① 3, 8, x

$V_G = \frac{1}{2} \cdot \pi \cdot 3 \cdot 3 \cdot 8 =$

$V_G = 24\pi\ cm^3$

$V_P = \frac{1}{2} \cdot V_G =$

$= \frac{1}{2} \cdot 24\pi$

$V_P = 12\pi\ cm^3$

$\frac{V_P}{V_G} = \left(\frac{x}{8}\right)^3 \Rightarrow \frac{12\pi}{24\pi} = \frac{x^3}{8^3}$

$= x^3 = 8 \cdot 4 \cdot 8^2$

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

$x = 4\sqrt[3]{4}\ cm$ (E)

V_E = espuma

V_S = sorvete

V_C = copo

② A, B, C, 4 cm, 20 cm, 16 cm, V

$\frac{V_S}{V_C} = \left(\frac{16}{20}\right)^3 \Rightarrow \frac{V_S}{V_C} = \left(\frac{4}{5}\right)^3 \Rightarrow V_S = \frac{64 \cdot V_C}{125}$

$V_E = V_C - V_S = V_C - \frac{64 V_C}{125} = \frac{61 V_C}{125} = 0{,}488\, V_C$

$V_E = 48{,}8\%\, V_C = 50\%\, V_C$ (C)

③ V, Y, h

$\frac{y}{h} = \frac{1}{\sqrt[3]{2}}$

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

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

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

$y = \frac{h\sqrt[3]{4}}{2}$ (F)

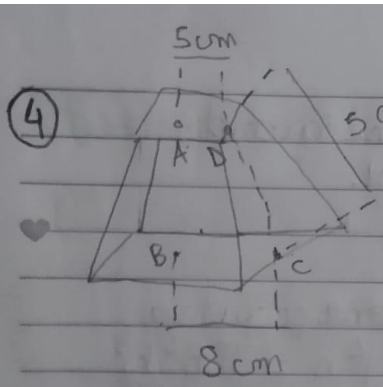
$\left(\frac{h}{y}\right)^3 = \frac{2V}{V}$

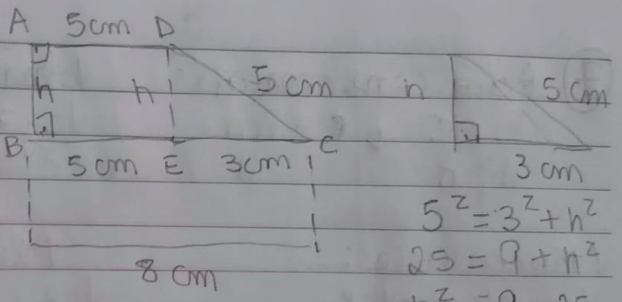
$\left(\frac{h}{y}\right)^3 = 2$

$h = \sqrt[3]{2}$

y

④





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

$25 = 9 + h^2$

$-h^2 = 9 - 25$

$-h^2 = -16 \ (.-1)$

$h^2 = 16$

$h = \sqrt{16}$

$h = 4\ cm$

⑤ Área Base menor

$Ab = \pi . r^2$

$Ab = \pi . 2^2$

Área lateral

$-h^2 = -16$

$h^2 = 16$

$h = \sqrt{16}$

$h = 4\ cm$

⑤ Área Base menor

$Ab = \pi . r^2$

$Ab = \pi . 2^2$

$Ab = 4\pi\ m^2$

Base maior

$AB = \pi . 5^2$

$AB = 25\pi\ m^2$

Área lateral

$g^2 = (R - r)^2 + h^2$

$g^2 = (5-2)^2 + 4^2$

$g^2 = 3^2 + 16$

$g^2 = 9 + 16$

$g^2 = 25$

$g^2 = \sqrt{25} = 5\ m$

$Al = \pi . 5 . (5+2)$

$Al = 5\pi . 7$

$Al = 35\pi\ m^2$

Área Total

$AT = 25\pi + 4\pi + 35\pi$

$AT = 64\pi\ m^2$

$r = 2\ m$

$R = 5\ m$

$4 = 4\ cm$

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

$V = \frac{3{,}14 . 4 (5^2 + 5 . 2 + 4^2)}{3}$

$V = \frac{12{,}56 . (25 + 10 + 16)}{3}$

$V = \frac{12{,}56 . 51}{3} = 213{,}52\ m^3$

Fórmula Volume do tronco

⑥ $V_T = \frac{\pi x}{3}(R^2 + T^2 + R.T)$ $\quad 7.3 = 21$

$\frac{\pi.3}{3} = (7^2 + 3^2 + 21)$

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

$\pi = 79$ (não consegui chegar em 49π)

79π

⑦ Raio cone menor

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

Volume cone grande

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

V tronco cone:

$V_{TC} = V_{cg} - V_{cp}$

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

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

Volume cone pequeno

$V_{cp} = \pi \left(\frac{\frac{Rh}{H}}{3}\right)^2 h = \frac{\pi.R^2.h^3}{3H^2}$

V cone = V tronco então:

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

$= h^3 = H^3 - h^3 \rightarrow 2h^3 = H^3$

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

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

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

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