# CONES E TRONCOS

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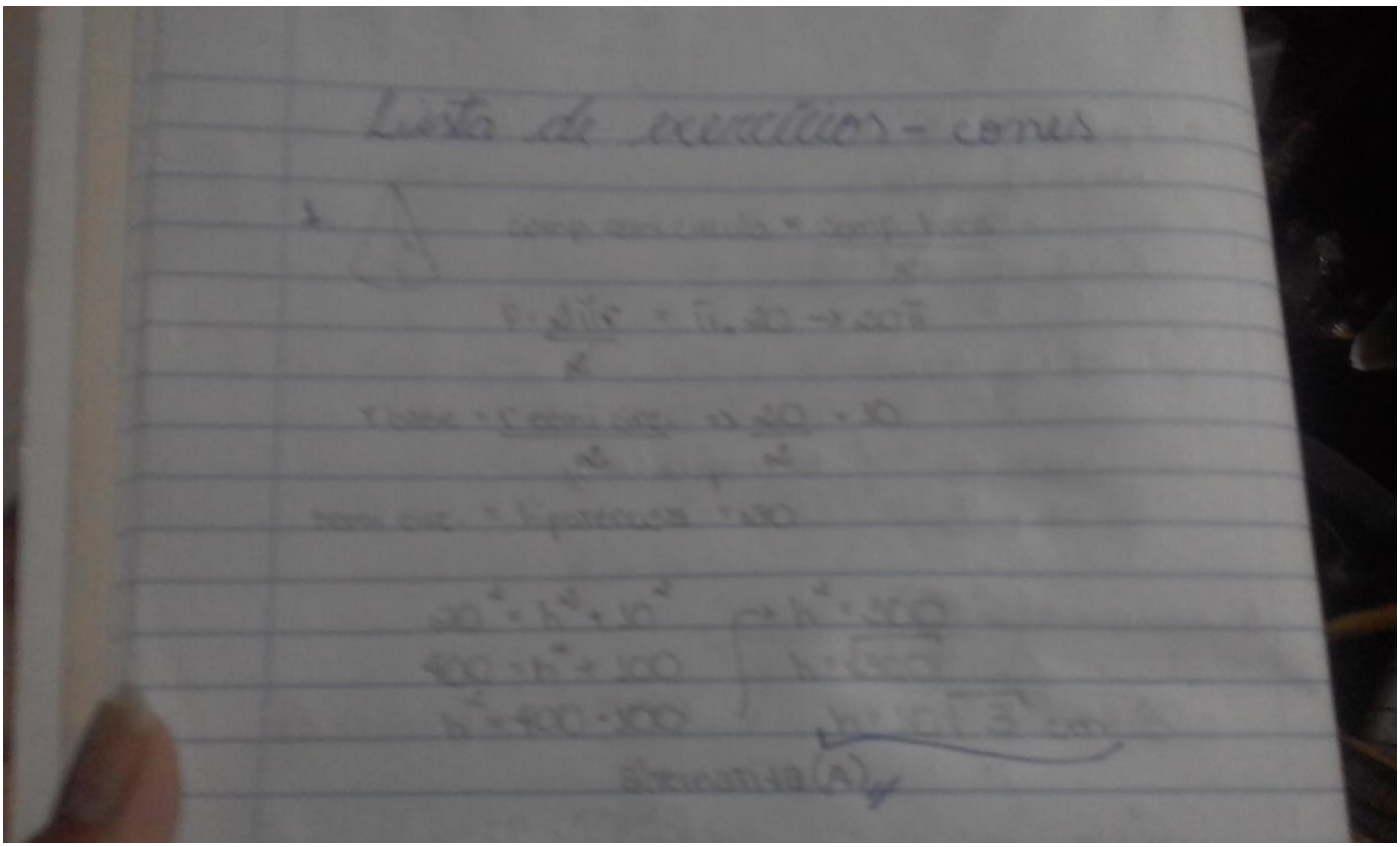
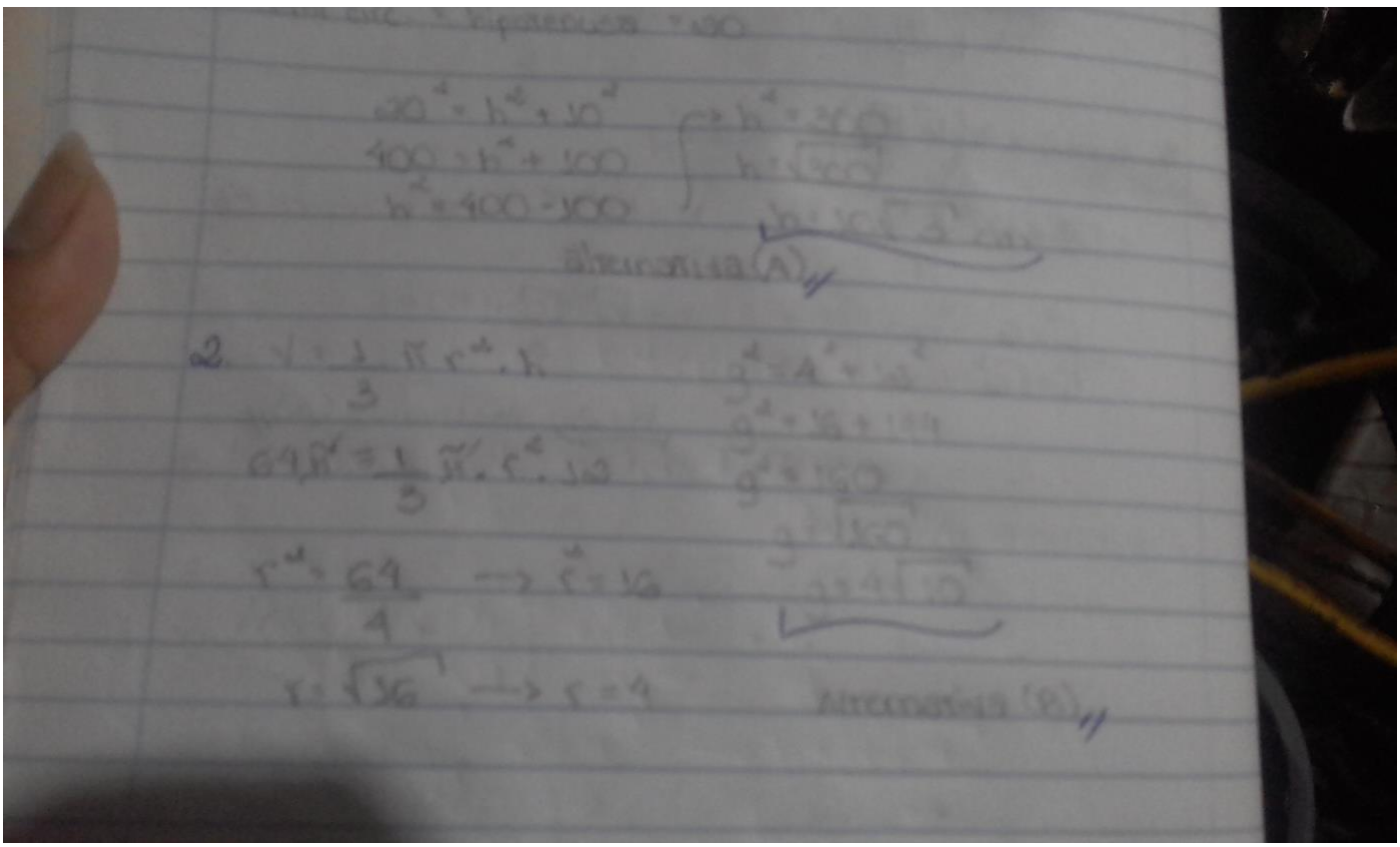


3 A área é $\pi r^2$ — $\frac{1}{3}\pi r^2 h$

$36\pi = \pi r^2$

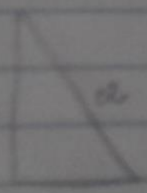
$r^2 = 36$

$r = \sqrt{36} \rightarrow r = 6$

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

$V = 3\pi \cdot 36 \cdot 6$

$V = 72\pi$ Alternativa (A)

4 


$r = 1$ $V = \frac{1}{3}\pi \cdot A_{base} \cdot h \rightarrow V = \frac{1}{3}(\sqrt{3}\cdot\pi \cdot r^2 \cdot h)$

$h = 1$ $V = \frac{\sqrt{3}\pi}{3}$

Volume Alternativa (E)

5 $V_{cilindro} = \pi r^2 h$ $V_{cone} = \frac{1}{3}\pi r^2 h$

6 $\frac{V_{prisma}}{V_{cone}} = \frac{(6\cdot r^2 \cdot h \cdot \sqrt{3})/2}{(\pi \cdot r^2 \cdot h\sqrt{3})/2} = \frac{6}{\pi}$ Alternativa (A)

7 $\frac{V_{sec}}{V_{cilindro} - V_{sec}} = \frac{\frac{2}{3}\pi r^2 h}{\pi r^2 h - \frac{2}{3}\pi r^2 h} = \frac{\left(\frac{\pi r^2 h}{3}\right)}{\frac{3\pi r^2 h - \pi r^2 h}{3}}$

$\frac{\pi r^2 h}{3} \cdot \frac{3}{2\pi r^2 h} = \frac{1}{2}$ Alternativa (B)

# Lista de exercícios - troncos

1. $V_{cone} = \frac{1}{3}\pi r^2 h$ $\quad \frac{V}{v} = \frac{H^3}{h^3} \rightarrow \frac{24\pi}{3\pi} = \frac{8^3}{h^3} \rightarrow$

$= \frac{1}{3}\pi \cdot 3^2 \cdot 8$ $\quad = \frac{512}{h^3} \rightarrow h = \sqrt[3]{256}$

$= \frac{1}{3}\pi \cdot 2 \cdot 3$ $\quad \hookrightarrow h = 4\sqrt[3]{4}$

$= 24\pi \text{ cm}^3$ Alternativa (E)

$V_{copo} \; 192\pi \text{ cm}^3$

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

$V_{copo} = V_{cone} + V_{espuma}$

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

$V_{espuma} = \frac{61 V}{125} \approx 0{,}48 V \approx 0{,}5$

$\hookrightarrow$ 50% Alternativa (C)

3. $\frac{V_{cone}}{V_t} = \left(\frac{h}{H}\right)^3 = \sqrt[3]{\frac{1}{2}} = \frac{h}{H}$

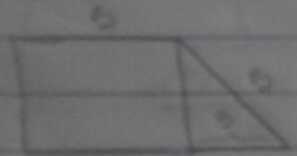
$\frac{1}{\sqrt[3]{2}} = \frac{\sqrt[3]{2^2}}{\sqrt[3]{2^3}} = \frac{\sqrt[3]{4}}{2} \rightarrow h = \frac{H\sqrt[3]{4}}{2}$

$V_{esquina} = \frac{0,8 V}{1,5} \approx 0,48 V \approx 0,5$

↳ 50% Alternativa (c)

3. $\frac{1/2 \cdot V_t}{V_t} = \left(\frac{h}{H}\right)^3 \Rightarrow \sqrt[3]{\frac{1}{2}} = \frac{h}{H}$

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

4. 


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

$25 = 9 + h^2$

$h^2 = 16$

$h = \sqrt{16}$

$h = 4\,cm$

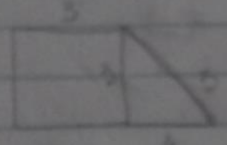
5. $A_t = A_B + A_L + A_L = \pi R^2 + \pi R^2 + (2\pi R + 2\pi R) \cdot g$

$= 2\pi R^2 + 4\pi R \cdot (10\pi + 4\pi) \cdot 5$

$= 2 \cdot 3\pi + 4 \cdot 3\pi \cdot 14\pi$

$= 18\pi + 168\pi = 186\pi\,m^2$

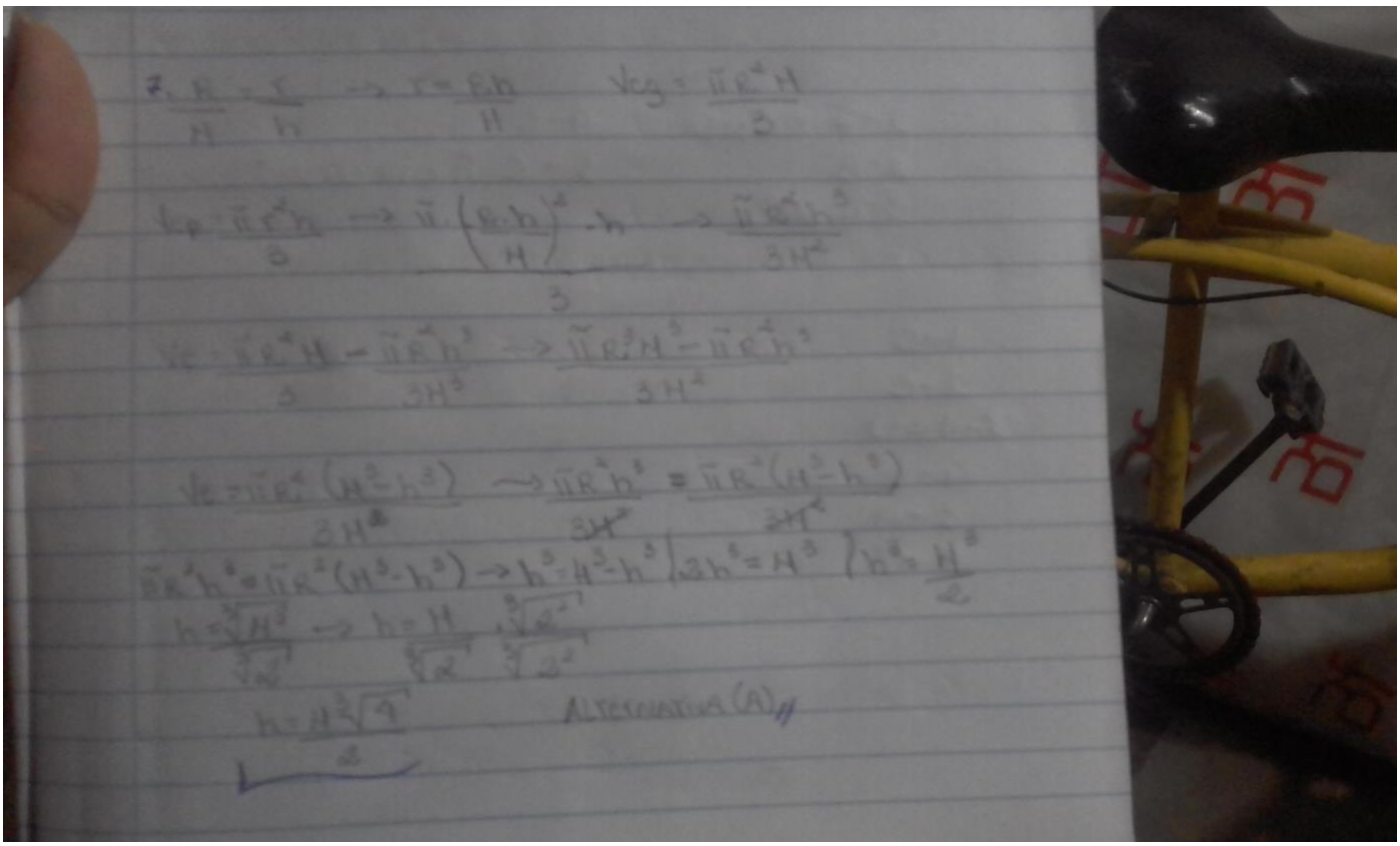
$V_t = \frac{\pi h}{3}(R^2 + R \cdot r + r^2) = \frac{\pi \cdot 4}{3} \cdot (9 + 3 \cdot 3 + 1)$

6. 


$V_t = \pi(9 + 3 \cdot 3 + 1)$

$= 19\pi$ Alternativa (b)

7. $\frac{R}{H} = \frac{r}{h} \rightarrow r = \frac{Rh}{H}$ $V_c = \frac{\pi R^2 H}{3}$



7. $\frac{R}{H} = \frac{r}{h} \rightarrow r = \frac{Rh}{H}$ $\quad V_{cg} = \frac{\pi R^2 H}{3}$

$V_p = \frac{\pi r^2 h}{3} \rightarrow \frac{\pi \left(\frac{R \cdot h}{H}\right)^2 \cdot h}{3} \rightarrow \frac{\pi R^2 h^3}{3H^2}$

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

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

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

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

$h = H\frac{\sqrt[3]{4}}{2}$ ALTERNATIVA (A) //