5. $A_b = \pi . 2^2$ $\quad A_B = \pi . 5^2$

$A_b = 4\pi\ m^2$ $\quad A_B = 25\pi\ m^2$

$g^2 = 4^2 + 3^2$ $\quad A_l = \pi(5+2)5$ $\quad A_T = 4\pi + 25\pi + 35\pi$

$g^2 = 16 + 9$ $\quad A_l = 35\pi\ m^2$ $\quad A_T = 64\pi\ m^2$

$g = \sqrt{25}$

$g = 5\ m$ $\quad V = \frac{\pi . 4}{3}(5^2 + 2^2 + 5.2)$

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

$\boxed{V = 52\pi\ m^3}$

6. $5^2 = h^2 + 4^2$ $\quad V = \frac{\pi . 3}{3}(7^2 + 3^2 + 7.3)$

$h^2 = 25 - 16$

$h = \sqrt{9}$ $\quad V = \pi(49 + 9 + 21)$

$h = 3\ cm$ $\quad V = 79\pi\ cm^3$

alternativa D

7. $\frac{R}{H} = \frac{x}{h} \Rightarrow x = \frac{Rh}{H}$ $\quad V_g = \frac{\pi . R^2 . H}{3}$

$V_p = \frac{\pi . x^2 . h}{3}$ $\quad V_R = \frac{\pi . R^2 . H}{3} - \frac{\pi . R^2 . h^3}{3H^2}$

$V_p = \frac{\pi . \left(\frac{Rh}{H}\right)^2 . h}{3}$ $\quad V_C = \frac{\pi . R^2 . H^3 - \pi . R^2 . h^2}{3H^2}$

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

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

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

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

$h = \frac{H^3\sqrt{4}}{2}$ $\quad 2h^3 = H^3$

alternativa A $\quad h^3 = H^3/2 \Rightarrow h = \sqrt[3]{H^3}/\sqrt[3]{2}$

3. $\frac{R}{h} = \frac{r}{x} \rightarrow r = \frac{R \cdot x}{h}$ $\quad V_{cg} = \frac{\pi \cdot R^2 \cdot h}{3}$

$V_{cp} = \frac{\pi \cdot r^2 \cdot x}{3} = \frac{\pi \cdot \left(\frac{R \cdot x}{h}\right)^2 \cdot x}{3} = \frac{\pi \cdot R^2 \cdot x^2}{3h^2}$

$V_{TC} = \frac{\pi \cdot R^2 \cdot h}{3} - \frac{\pi \cdot R^2 \cdot x^3}{3h^2}$

$V_{TC} = \frac{\pi \cdot R^2 \cdot h^3 - \pi \cdot R^2 \cdot x^3}{3h^2}$

$V_{TC} = \frac{\pi \cdot R^2 (h^3 - x^3)}{3h^2}$

$\frac{\pi \cdot R^2 \cdot x^3}{3h^2}$

$\frac{\pi \cdot R^2 (h^3 - x^3)}{3h^2}$

$\pi \cdot R^2 \cdot x^3 = \pi \cdot R^2 (h^3 - x^3)$

$x^3 = h^3 - x^3$

$2x^3 = h^3$

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

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

4. $5^2 = h^2 + 3^2$

$h^2 = 25 - 9$

$h = \sqrt{16}$

$\boxed{h = 4\,cm}$

Tarefa básica - tronco

1. $V_{tc} = \frac{\pi \cdot 3^2 \cdot 8}{3}$ $\quad V_{cp} = \frac{24\pi}{2} = 12\pi \text{ cm}^3$

$V_t = 24\pi \text{ cm}^3$

$\frac{12\pi}{24\pi} = \frac{4^3}{8^3}$

$24\pi \cdot 4^3 = 512 \cdot 12\pi$

$h^3 = \frac{6144\pi}{24\pi}$

$h = \sqrt[3]{256}$

$h = 4\sqrt[3]{4}$ cm alternativa E

2. $\frac{V_{cp}}{V_{cg}} = \frac{16^3}{20^3} \rightarrow V_{cp} = \frac{4^3}{5^3} \cdot V \rightarrow V_{cp} = \frac{64V}{125} \text{ cm}^3$

$V_{tc} = V - \frac{64V}{125}$ $\quad V = 100\%$ $\quad x = \frac{6100}{125}$

$V_{TC} = \frac{125V - 64V}{125}$ $\quad \frac{61V}{125} = x$ $\quad x = 48,8\%$

alternativa C

$V_{TC} = \frac{61V}{125} \text{ cm}^3$

5. $V_{\square} = \pi \cdot 3^2 \cdot 5 = 45\pi$

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

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

$V_{liq} = 44\pi$ alternativa E

6. $V_{cone} = \frac{Ab \cdot h}{3}$ $V_{prisma} = \frac{Ab \cdot 2h}{3}$

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

$V_{prisma} = \frac{Ab \cdot 2 \cdot V_{cone} \cdot 3 \cdot 1}{Ab \quad 3}$ $V_{prisma} = 2\ V_{cone}$

alternativa A

7. $V_{abc} = \frac{1}{3} \cdot \pi \cdot x^2 \cdot y$ $V_{abcd} = \pi \cdot x^2 \cdot y$

$V_{adc} = \pi \cdot x^2 \cdot y - \frac{\pi \cdot x^2 \cdot y}{3}$

$V_{adc} = \pi \cdot x^2 \cdot y - \frac{\pi \cdot x^2 \cdot y}{3}$

$V_{adc} = \frac{3\pi \cdot x^2 \cdot y - \pi \cdot x^2 \cdot y}{3}$

$V_{adc} = \frac{2\pi \cdot x^2 \cdot y}{3}$

$R = \frac{\pi \cdot x^2 \cdot y}{3} \div \frac{2\pi \cdot x^2 \cdot y}{3}$ $\therefore R = \frac{\pi \cdot x^2 \cdot y}{3} \cdot \frac{3}{2\pi \cdot x^2 \cdot y}$ $\therefore R = \frac{1}{2}$

alternativa E

Tarefa básica - cones

1. $A_x = \frac{\pi (20)^2}{2}$ $\quad A_l = \pi \cdot r \cdot 20$

$\frac{\pi (20)^2}{2} = \pi \cdot r \cdot 20 \rightarrow r = 10\,cm$

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

$h^2 = 400 - 100$

$h = \sqrt{300}$

$h = 10\sqrt{3}$ cm alternativa A

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

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

$r = \sqrt{18}$

$r = 4\,cm$

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

$g^2 = 144 + 16$

$g = \sqrt{160}$

$g = 4\sqrt{10}$ cm

alternativa B

3. $36\pi = \pi \cdot r^2$

$r = 6$ cm

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

$V = 72\pi\ cm^3$

alternativa A

4. $\sqrt{2}$, x, 2, $\sqrt{3}$

$2^2 = l^2 + l^2$

$2l^2 = 4$

$l = \sqrt{2}$ cm

$(\sqrt{2})^2 = 1^2 + x^2$

$x^2 = 2 - 1$

$x = 1\,cm$

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

$V = \frac{2\pi}{3}\ cm^3$

alternativa E