Tarefa Básica – Cones

01.

$g = r \cdot 20$

$\dfrac{2\pi n}{2} = 2\pi r \to r = \dfrac{\pi n}{2\pi} = \dfrac{\pi}{2} \cdot \dfrac{20}{2} = 10$
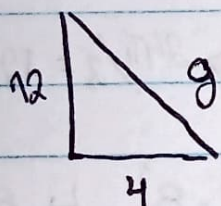
$h^2 = 20^2 - 10^2 = 300$

$h = \sqrt{300} = \boxed{10\sqrt{3}}$ (A)

02. Volume $= 1/3 \cdot A_B \cdot h = 1/3 \cdot A_B \cdot 12 = 4 A_B$

$64\pi = 4 A_B \to A_B = 16\pi$
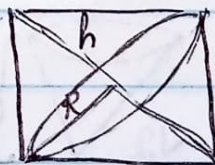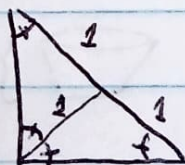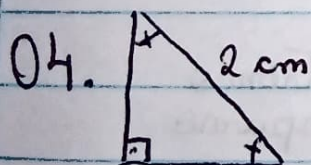
$16\pi = \pi R^2 \to R^2 = 16 \to R = 4$

$g^2 = 144 + 16 = 160$

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

03. $36\pi = \pi \cdot R^2 \to R^2 = 36 \to R = 6$

$V = 1/3 \cdot 36\pi \cdot 6 = 2 \cdot 36\pi = \boxed{72\pi}$ (A)

04.

2 cm

2 comes

$R = 1 \quad h = 1$

$A_b = \pi R^2 = \pi 1^2 = \pi \qquad V = 2\left(1/3 \cdot \pi \cdot 1\right) = \boxed{\dfrac{2\pi}{3}}$ (E)

05. $V_{cilindro} = \pi 3^2 \cdot 10 = 90\pi$

$V_{cone} = 1/3 \cdot \pi \cdot 3 = \pi$

$V_{líquido} = (30\pi/2) - \pi = 45\pi - \pi = \boxed{44\pi}$

06. $V_{cone} = 1/3 \cdot 1 \cdot 1 = 1/3$ $V_{prisma} = 1 \cdot 2/3 = 2/3$

$\dfrac{V_{prisma}}{V_{cone}} = \dfrac{2}{3} \cdot \dfrac{3}{1} = \dfrac{6}{3} = \boxed{2} (A)$

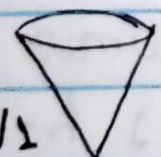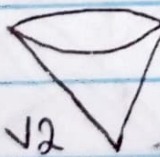07. $ABC = 1/3$ do total $ADC = \dfrac{2}{3}$ do total

$\dfrac{ABC}{ADC} = \dfrac{1/3}{2/3} = \dfrac{1}{3} \cdot \dfrac{3}{2} = \dfrac{3}{6} = \boxed{\dfrac{1}{2}} (E)$

Tarefa Básica — Troncos

01. $V_{cone} = 1/3 \cdot 9\pi \cdot 8 = 3\pi \cdot 8 = 24\pi \rightarrow 24\pi/2 = 12\pi$

$\dfrac{V_{cone\,2}}{V_{cone\,1}} = \left(\dfrac{x}{8}\right)^3 \rightarrow \dfrac{12}{24} = \dfrac{1}{2} = \dfrac{x^3}{8^3} \rightarrow x^3 = \dfrac{8^3}{2} = 4 \cdot 8^2$
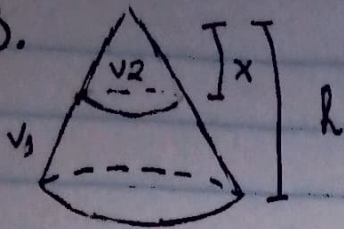
$x^3 = 4 \cdot 8^2 = 256 \rightarrow x = \sqrt[3]{256} \rightarrow \boxed{x = 4\sqrt[3]{4}} (E)$

02. } 20   } 16   } 4 tronco espuma

$\dfrac{V_2}{V_1} = \left(\dfrac{16}{20}\right)^3 = \left(\dfrac{4}{5}\right)^3 = \dfrac{64}{125} = 0,512 \rightarrow 51\%$
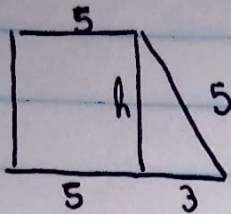
tronco $= 100 - 51 = 49\% \approx 50\%$ (C)

03.

$$\frac{V_2}{V_3} = \frac{1}{2} = \left(\frac{x}{h}\right)^3 \qquad x^3 = \frac{h^3}{2}$$

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

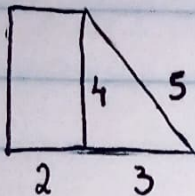**04.**

$$h^2 = 25 - 9$$
$$h = \sqrt{16}$$
$$\boxed{h = 4 \text{ cm}}$$

05.

$$A_{base} = \pi \, 5^2 = 25\pi$$
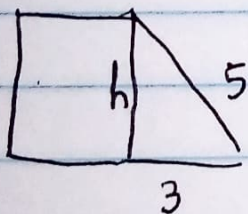$$A_{base\,2} = \pi \, 2^2 = 4\pi$$
$$A\ell = \pi(5+2)\cdot 5 = 35\pi$$

$$A_{total} = 25\pi + 35\pi + 4\pi$$
$$A_{total} = 64\pi$$

$$V = 4\pi/3 \cdot (25 + 4 + 10)$$
$$V = 4 \cdot 39\pi/3 \qquad \therefore \boxed{V = 52\pi} \quad (C)$$
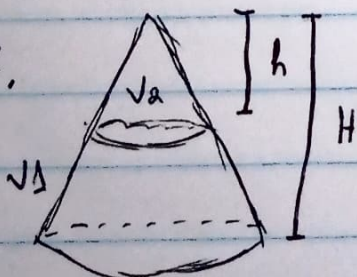
06.

$$h^2 = 5^2 - 3^2 \qquad V = \frac{3\pi}{3} \cdot (7^2 + 3^2 + 7 \cdot 3)$$
$$h = 4$$
$$V = \pi(49 + 9 + 21)$$
$$\boxed{V = 79\pi} \quad (D)$$

07.

$$\frac{V_2}{V_1} = \frac{1}{2} = \left(\frac{h}{H}\right)^3 = \frac{h^3}{H^3}$$

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