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Turma: CTII 348

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Disciplina: Matemática

IFSP - Câmpus Cubatão

Tarefa Básica 05

Cones e Troncos

(Fotos nas páginas seguintes)

1ª Lista – Cones

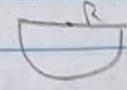
Exercícios 1 e 2:

D S T Q Q S S

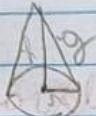
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matrícula 5 - Cones e Prismas

Solução Básica - Cones

1-)  $R = 20 \text{ cm}$

$$R = 20 \text{ cm} \quad | \quad R = r \quad | \quad g = 20 \text{ km}$$



$$\text{Área da base} = \text{Área Lateral}$$

$\frac{1}{2} \pi r^2 = \pi r l$

$$\frac{1}{2} \cdot \pi \cdot R^2 = \pi \cdot r \cdot g$$

$$\frac{1}{2} \cdot \pi \cdot 20^2 = \pi \cdot r \cdot 20$$

$$\pi \cdot 20^2 = \pi \cdot r \cdot 40$$

$$\pi \cdot 400 = \pi \cdot r \cdot 40$$

$$r = \frac{400}{40} \Rightarrow r = 10$$

$$g^2 = l^2 + r^2$$

$$20^2 = l^2 + 10^2$$

$$400 = l^2 + 100$$

$$400 - 100 = l^2$$

$$l^2 = 300$$

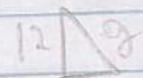
$$l = \sqrt{300}$$

$$l = \sqrt{2 \cdot 3 \cdot 5^2}$$

$$l = 2 \cdot 5 \sqrt{3}$$

$$l = 10\sqrt{3} \text{ cm} \quad \text{máx A.}$$

2-)  $l = 12 \text{ cm} \quad | \quad V = 64\pi \text{ cm}^3 \quad | \quad g = ?$



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

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

$$64 \cdot 3 = r^2 \cdot 12$$

$$192 = r^2 \cdot 12$$

$$r^2 = \frac{192}{12}$$

$$r^2 = 16$$

$$r = \sqrt{16}$$

$$r = 4$$

$$g^2 = l^2 + r^2$$

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

$$g^2 = 160$$

$$g = \sqrt{160}$$

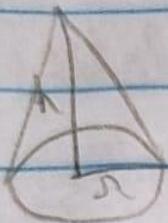
$$g = \sqrt{2^2 \cdot 2^2 \cdot 5}$$

$$g = 2 \cdot 2 \sqrt{5}$$

$$g = 4\sqrt{10} \text{ cm} \quad \text{máx B.}$$

Exercícios 3 e 4:

3-1



$$36\pi = \pi r^2$$

$$r^2 = 36$$

$$r = \sqrt{36}$$

$$\boxed{r=6}$$

$$R=6$$

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

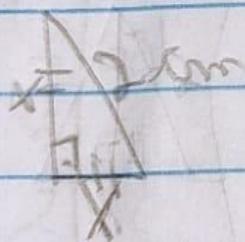
$$V = \frac{1}{3} \cdot \pi \cdot 6^2 \cdot 8$$

$$V = \pi \cdot 36 \cdot 2$$

$$\boxed{V = 72\pi \text{ cm}^3}$$

→ Sétima A.

4-1

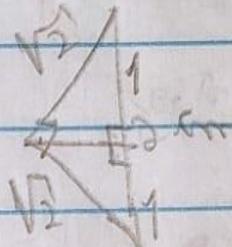


$$2^2 = x^2 + x^2$$

$$4 = 2x^2$$

$$x^2 = 2$$

$$\boxed{x = \sqrt{2}}$$



$$V = \pi \cdot 1^2 \cdot 1 \Rightarrow V = \underline{\underline{\pi}}$$



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

$$\rightarrow \underline{\underline{\frac{2\pi}{3}}} \rightarrow \text{Sétima E.}$$

Exercícios 5, 6 e 7:

$$5-1 \quad \text{Diagram of a cylindrical container with height } H = 10 \text{ and radius } R = 3. \quad n = 1$$

$$V_{\text{Recipiente}} = V_{\text{Cilindro}} - V_{\text{cone}}$$

$$V_{\text{cilindro}} = \pi \cdot R^2 \cdot h_2 \quad \left\{ \begin{array}{l} V_{\text{cone}} = \frac{1}{3} \cdot \pi \cdot r^2 \cdot 3 \\ V = \frac{1}{3} \cdot \pi \cdot 1^2 \cdot B \\ V = \pi \cdot 9 \cdot 5 \end{array} \right.$$

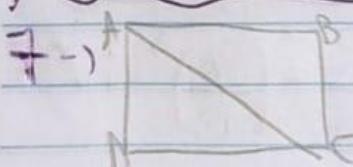
$N_{\text{cilindro}} = 45\pi$ $N_{\text{cone}} = \pi$

$$V_{\text{Resident}} = 45\pi - 9$$

$$V_{\text{Recipiente}} = 44 \mu\text{l}$$

$$6 \rightarrow \frac{V_{Prisma}}{V_{Kone}} = \frac{\text{Abstr. Prisma} \cdot \frac{1}{3} \cdot h}{\frac{1}{3} \cdot \text{Abstr. Kone} \cdot r} \quad | \cdot 3 \Rightarrow V_{Prisma} = V_{Kone} \cdot \frac{1}{3} \cdot h$$

$$\frac{VP}{VC} = \frac{2x \cdot k}{V_k \cdot x} \Rightarrow VP = \frac{2k}{V_k} \cdot VC$$



$$\overline{AB} = 2 \quad | \quad \overline{AD} = 1$$

$$\nabla_{AD} = \frac{\partial}{\partial x}$$

$$V_{ABC} = \frac{\pi r^2 \cdot h}{3} = \frac{4\pi}{3} \quad (V_{ADS} = (\pi r^2 \cdot h) - V_{ABC})$$

$$\sqrt{A_{ABC}} = \sqrt{4\pi} = 2\sqrt{\pi}$$

$$V_{AB} = V_{AC} - V_{BC}$$

Rozszt. VABC

~~WADC~~ ~~otnemšanāsīgums~~

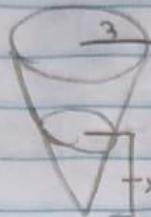
$$\frac{4\%}{8} = \frac{4}{8} = \boxed{\frac{1}{2}} \rightarrow \text{Extra E.}$$

2ª Lista – Troncos

Exercícios 1 e 2:

Solução Básica - Tronco

1-)



$$R = 3 \text{ cm} \quad h = 8 \text{ cm}$$

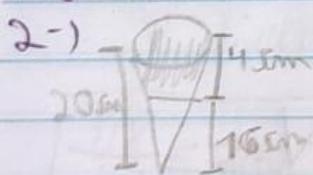
$$\begin{aligned} V_{\text{cone main}} &= \frac{1}{3} \cdot \pi \cdot R^2 \cdot h \\ &= \frac{1}{3} \cdot \pi \cdot 3^2 \cdot 8 \\ &= \frac{1}{3} \cdot \pi \cdot 8 \cdot 8 \\ &= \pi \cdot 3 \cdot 8 \end{aligned} \quad \left. \begin{aligned} V_{\text{cone minor}} &= \frac{1}{3} \cdot \pi \cdot r^2 \cdot h \\ &= \frac{1}{3} \cdot \pi \cdot 2^2 \cdot 8 \\ &= \frac{1}{3} \cdot \pi \cdot 4 \cdot 8 \\ &= \frac{1}{3} \cdot 24\pi \end{aligned} \right\} V_{\text{tronco}} = \boxed{12\pi \text{ cm}^3}$$

$$V_{\text{cone main}} = \boxed{24\pi \text{ cm}^3}$$

$$\text{Resolva: } V_{\text{tronco}} = \left(\frac{x}{8}\right)^3 \Rightarrow \frac{12\pi}{24\pi} = \frac{x^3}{8^3}$$

$$\therefore \frac{1}{2} = \frac{x^3}{8^3} \quad | \cdot 2^3 \Rightarrow 2 \cdot x^3 = 8^3 \Rightarrow x^3 = 4 \cdot 2 \cdot 8^2 \Rightarrow \sqrt[3]{x^3} = \sqrt[3]{4 \cdot 2 \cdot 8^2} \therefore$$

$$\therefore x = 2 \cdot \sqrt[3]{4} \quad \boxed{x = 4 \sqrt[3]{4}} \quad \text{mais 2 trunco E.}$$



$$\begin{aligned} V_{\text{main}} &= \left(\frac{16}{2}\right)^3 \Rightarrow V_{\text{main}} = \left(\frac{8}{1}\right)^3 \quad | \cdot + \\ V_{\text{minor}} &= \left(\frac{10}{2}\right)^3 \Rightarrow V_{\text{minor}} = \left(\frac{5}{1}\right)^3 \end{aligned}$$

$$\therefore V_{\text{tronco}} = \frac{512}{1000} \Rightarrow \boxed{V_{\text{tronco}} = 51,2\%}$$

$$Ver\text{perma} = V_{\text{main}} - V_{\text{minor}}$$

$$Ver\text{perma} = 100\% - 51,2\%$$

$$\boxed{Ver\text{perma} = 48,8\% \approx 50\%} \rightarrow \text{mais 2 trunco E.}$$

Exercícios 3, 4 e 5:

D S T Q Q S S

$$3) \frac{V_1}{V_2} = \frac{x}{\sqrt[3]{2}}$$

$$\frac{1}{2} = \left(\frac{x}{\sqrt[3]{2}}\right)^3 \Rightarrow \frac{1}{2} = \frac{x^3}{\sqrt[3]{8}} \Rightarrow \sqrt[3]{8} = 2x^3 \Rightarrow x^3 = \frac{\sqrt[3]{8}}{2} \therefore$$

$$\therefore x = \frac{\sqrt[3]{8}}{\sqrt[3]{2}} \Rightarrow x = \frac{\sqrt[3]{8}}{\sqrt[3]{2}} \cdot \frac{\sqrt[3]{2}}{\sqrt[3]{2}} \Rightarrow x = \frac{\sqrt[3]{16}}{2}$$

4.1

$$\alpha = 5 \text{ cm}$$

$$\beta = 5 \text{ cm}$$

$$\gamma = 8 \text{ cm}$$

$$\gamma^2 = \alpha^2 + (\gamma - \alpha)^2$$

$$5^2 = \alpha^2 + (8 - 5)^2$$

$$25 = \alpha^2 + 3^2$$

$$25 = \alpha^2 + 9 \Rightarrow \alpha^2 = 25 - 9 \Rightarrow \alpha = \sqrt{16}$$
 ~~$\alpha = 16$~~

$$\alpha = 4 \text{ cm}$$

5.1

$$V = \frac{1}{3} \pi (r_1^2 + r_1 r_2 + r_2^2) h$$

$$V = \frac{1}{3} \pi (4^2 + 4 \cdot 3 + 3^2) \cdot 5$$

$$V = \frac{1}{3} \pi (16 + 12 + 9) \cdot 5$$

$$V = \frac{1}{3} \pi (37) \cdot 5$$

$$V = 61.67 \pi$$

$$r_1 = 4 \text{ m}$$

$$r_2 = 3 \text{ m}$$

$$h = 5 \text{ m}$$

$$A_s = \pi r_1^2 = 16\pi$$

$$A_b = \pi r_2^2 = 9\pi$$

$$A_l = \pi (r_1 + r_2) h = 35\pi$$

$$A_t = 64\pi$$

$$V = 52\pi$$

$$A = 64\pi$$

Exercício 6:

6-1

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

$$h^2 = 9$$

$$h = 3 \text{ cm}$$

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

$V = \pi \cdot 49 + 21 + 9 \Rightarrow V = 49\pi \text{ m}^3$

Mensagem D.

U galanito
dig letra B, porém,
corrigindo com o prof,
ele disse que é D.

Exercício 7:

7-1

$$\frac{1}{2} = \left(\frac{r}{H}\right)^3$$

$$r = H \cdot \sqrt[3]{\frac{1}{2}}$$

$$H^3 = 2r^3$$

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

$$r = H \sqrt[3]{\frac{1}{2}}$$

Mensagem A.