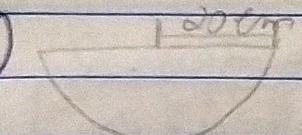
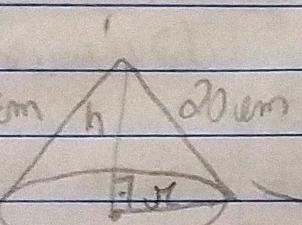


# Tarefa Básica - Cones

Nome: Bárbara U. Grosse, CT 11350.

①   $\rightarrow \text{Circunferência} = \frac{1}{2} \cdot 2 \cdot \pi \cdot R$   
semicírculo

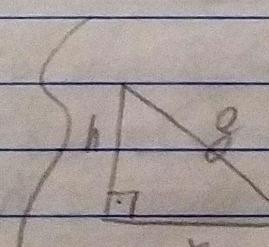


$$C = \frac{1}{2} \cdot 2 \cdot \pi \cdot 20 = 20\pi$$

\* As bases têm o mesmo comprimento  
do semicírculo

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

$$r = \frac{20\pi}{2\pi} = 10 \text{ cm}$$



$$\begin{aligned} l^2 &= h^2 + r^2 \\ 20^2 &= h^2 + 10^2 \end{aligned}$$

$$\begin{aligned} h^2 &= 400 - 100 \\ h &= \sqrt{300} \end{aligned}$$

$$h = \sqrt{3 \cdot 100} = \sqrt{3} \cdot \sqrt{100}$$

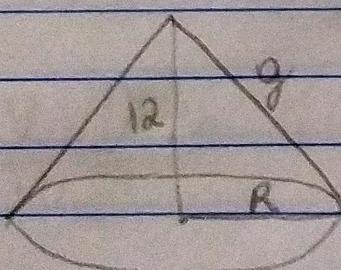
$$h = [10 \cdot \sqrt{3} \text{ cm}] \text{ A}$$

②  $g = ?$

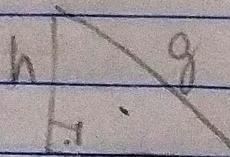
$$\text{Volume} = 64\pi \text{ dm}^3$$

$$\frac{1}{3} \cdot \pi \cdot R^2 \cdot h = 64\pi$$

$$\begin{aligned} R^2 &= \frac{16 \cdot 3}{\pi} \\ R &= \sqrt{16} \end{aligned}$$



$$\begin{aligned} R^2 &= \frac{64\pi \cdot 3}{\pi \cdot 12 : 4} \\ R &= 4 \text{ cm} \end{aligned}$$



$$\begin{aligned} g^2 &= h^2 + R^2 \\ g^2 &= 12^2 + 4^2 \\ g &= \sqrt{144 + 16} \end{aligned} \rightarrow g = \sqrt{160} = \sqrt{16 \cdot 10}$$

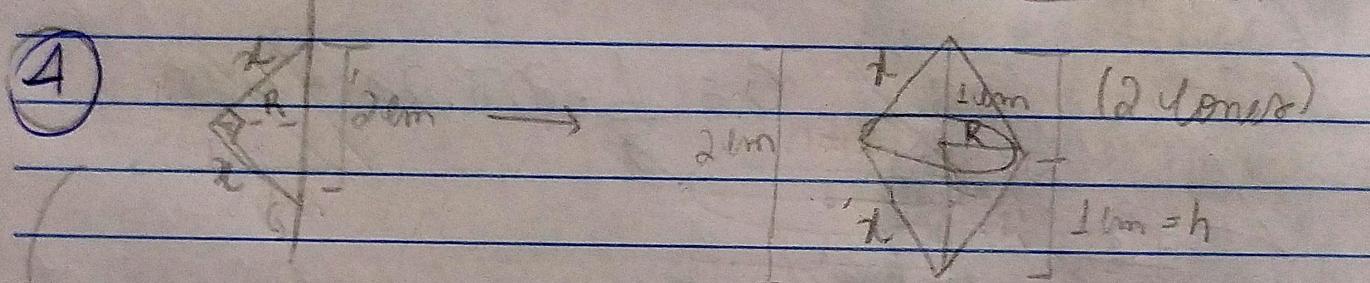
$$\begin{aligned} g &= \sqrt{16 \cdot 10} \\ g &= [4\sqrt{10} \text{ dm}] \end{aligned}$$

AFAPPEL

B)

$$\textcircled{3} \quad \begin{array}{l} \text{A} \\ \text{A} \\ \text{A} \end{array} \quad \text{A}_{\text{Hinr}} = 36\pi \text{ cm}^2 \quad \sqrt{36} = \sqrt{36} \quad \frac{\pi \cdot R^2}{\pi} = 36\pi \quad \rightarrow \quad R = 6 \text{ cm}$$

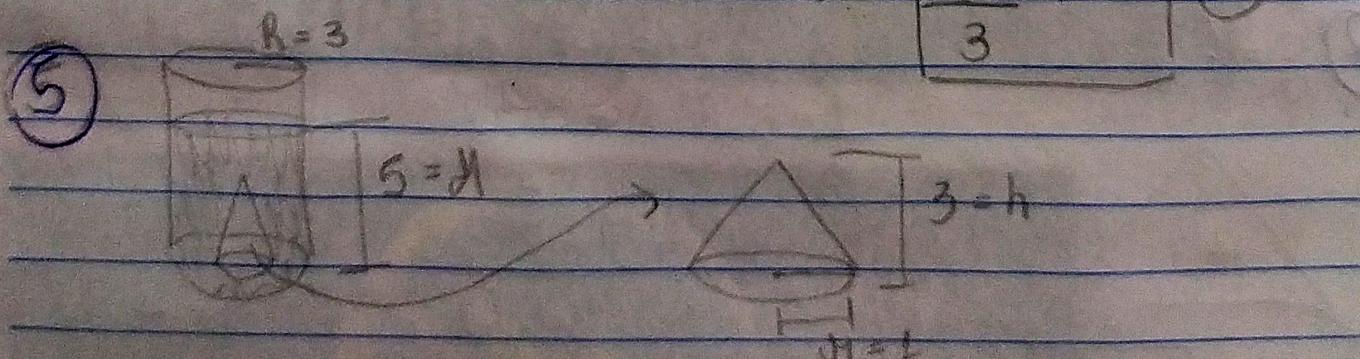
$$V = \frac{1}{3} \cdot \text{Ab.} \cdot h \rightarrow V = \frac{1}{3} \cdot 36\pi \cdot 6 \rightarrow V = 36\pi \cdot 2 \quad V = \boxed{72\pi \text{ cm}^3} \quad \text{(A)}$$



$$\begin{aligned} 2^2 &= r^2 + x^2 \\ 2x^2 &= 4 \\ x^2 &= 4 - 2 \\ x &= \sqrt{2} \quad \left( \begin{array}{c} n \\ h \\ R \end{array} \right) \quad \begin{array}{l} r^2 = h^2 + R^2 \\ r^2 = 1^2 + R^2 \\ R^2 = 2 - 1 \end{array} \\ x &= \sqrt{2} \quad R = \sqrt{1} = 1 \text{ m} \end{aligned}$$

$$V_{\text{Volumen}} = 2 \cdot \sqrt{2} \cdot \pi \text{ m}^3 \quad \rightarrow \quad V_2 = 2 \cdot \frac{1}{3} \cdot \pi \cdot 1^2 \cdot 1$$

$$V_2 = 2 \cdot \frac{1}{3} \cdot \pi \cdot R^2 \cdot h \quad \rightarrow \quad V_2 = \boxed{\frac{2\pi}{3} \text{ m}^3} \quad \text{(E)}$$



$$\begin{aligned} V_{\text{Volumen}} &= V_{\text{Volumen}} - V_{\text{Kegel}} \quad \rightarrow \quad V_1 = 45\pi - \pi \\ V_1 &= \pi \cdot R^2 \cdot h - \frac{1}{3} \cdot \pi \cdot r^2 \cdot h \quad \rightarrow \quad V_1 = \boxed{44\pi} \quad \text{(E)} \\ V_1 &= \pi \cdot 3^2 \cdot 5 - \frac{1}{3} \cdot \pi \cdot 1^2 \cdot 3 \end{aligned}$$

$$\textcircled{6} \quad A_{\text{prisma}} = A_{\text{base}} = \pi \quad \left\{ \begin{array}{l} V_{\text{prisma}} = ? \\ V_{\text{cone}} = ? \end{array} \right.$$

$$h_{\text{prisma}} = \frac{2}{3} h_{\text{cone}}$$

$$\pi \cdot \frac{2}{3} h_{\text{cone}} \div \pi h_{\text{cone}} = \frac{2}{3}$$

$$V_{\text{prisma}} = A_{\text{b.}} \cdot h_{\text{prisma}}$$

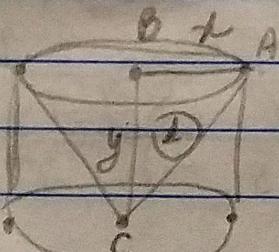
$$V_{\text{prisma}} = \pi \cdot \frac{2}{3} h_{\text{cone}}$$

$$\left( \pi \cdot \frac{2}{3} h_{\text{cone}} \right) \cdot \frac{3}{\pi h_{\text{cone}}} = 2$$

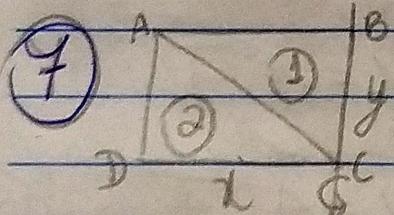
$$V_{\text{cone}} = \frac{1}{3} \cdot A_{\text{b.}} \cdot h_{\text{cone}}$$

$$= \boxed{2} \textcircled{A}$$

$$V_{\text{cone}} = \frac{1}{3} \cdot h_{\text{cone}}$$



$$\left\{ \frac{V_{\text{solido 1}}}{V_{\text{solido 2}}} = ? \right.$$



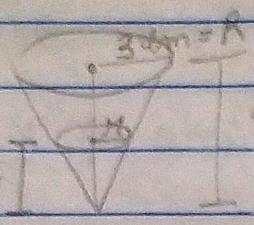
$$V_{\text{1}} \textcircled{1} = V_{\text{cylinder}} = \frac{1}{3} \pi r^2 h$$

$$V_{\text{1}} \textcircled{2} = V_{\text{cylinder}} - V_{\text{cone}} = \pi r^2 h - \frac{\pi r^2 h}{3} = \pi r^2 h \left( 1 - \frac{1}{3} \right)$$

$$\frac{V_{\text{1}} \textcircled{1}}{V_{\text{1}} \textcircled{2}} = \frac{\pi r^2 h}{\pi r^2 h} \div \frac{\pi r^2 h}{\pi r^2 h} \cdot \frac{(3-1)}{3} = \frac{2}{3}$$

$$\frac{V_{\text{1}} \textcircled{1}}{V_{\text{1}} \textcircled{2}} = \left( \frac{\pi r^2 h}{\pi r^2 h} \right) \cdot \left( \frac{2}{\pi r^2 h \cdot 2} \right) = \boxed{\frac{1}{2}} \textcircled{E}$$

# Torre Basilo - Troncos

① 

$V_{\text{torre menor}} = V_{\text{franjo de lente}}$

$h = x$   $8 \text{ cm} = H$   $\checkmark V_{\text{torre menor}} = V_{\text{lente maior}} - V_{\text{lente menor}}$

2.  $V_{\text{lente menor}} = V_{\text{lente maior}}$

$$H = K \rightarrow K = \frac{8}{x}$$

$$V_{\text{lente maior}} = 2$$

$$V_{\text{lente menor}}$$

$$V_{\text{lente maior}} = K^3$$

$$K^3 = 2 \rightarrow K = \sqrt[3]{2}$$

$$V_{\text{lente menor}}$$

$$\sqrt[3]{2} = \frac{8}{x}$$

$$x = \frac{8}{\sqrt[3]{2}} \cdot \frac{\sqrt[3]{2}^2}{\sqrt[3]{2}^2}$$

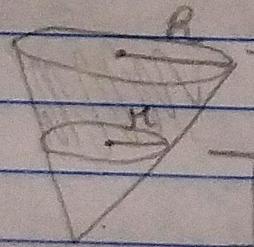
$$x = \frac{8 \sqrt[3]{4}}{\sqrt[3]{2}^2}$$

$$\sqrt[3]{2} x = 8$$

$$x = \frac{8 \sqrt[3]{4}}{\sqrt[3]{2 \cdot 2^2}}$$

$$x = \frac{8 \sqrt[3]{4}}{2}$$

$$x = \boxed{4 \sqrt[3]{4} \text{ cm}} \quad \textcircled{E}$$

② 

$4 \text{ cm}$   $20 \text{ cm}$   $16 \text{ cm} = h$   $\checkmark H$

$P_{\text{espuma}} = 100\% - P_{\text{de serreto}}$   
 $P_{\text{de serreto}} = 100\% - P_{\text{de espuma}}$

$$h = K \rightarrow 16 : 4 = K \rightarrow K = 4$$

$$P_{\text{de espuma}} = 100\% - 51,2\%$$

$$H = 20 : 4 = 5$$

$$P_{\text{de espuma}} = 48,8\%$$

$$P_{\text{de espuma}} \approx \boxed{50\%} \quad \textcircled{C}$$

$$P_{\text{de serreto}} = \frac{V_{\text{lente menor}} (\text{serreto})}{V_{\text{lente maior}} (\text{total})}$$

$$P_{\text{de serreto}} = K^3$$

$$P_{\text{de serreto}} = \left(\frac{4}{5}\right)^3 = \frac{64}{125} \cdot 100\% = \boxed{51,2\%}$$

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$$\textcircled{3} \quad \begin{array}{c} \text{Diagram of a frustum of a cone with radius } R, \text{ height } h, \text{ and diameter } d. \end{array} \quad d = ? \quad \left\{ \begin{array}{l} \frac{h}{d} = k \\ h = \sqrt[3]{2} \cdot d \end{array} \right.$$

Volumen menor = Volumen grande

Volumen menor = Volumen mayor - Volumen menor

2. Volumen menor = Volumen mayor

$$\underline{\text{Volumen mayor}} = 2 = K^3$$

Volumen menor

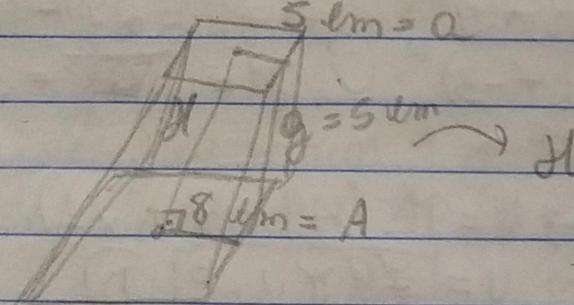
$$d = \frac{h}{\sqrt[3]{2}} \cdot \frac{\sqrt[3]{2}^2}{\sqrt[3]{2}^2}$$

$$K^3 = 2 \rightarrow K = \sqrt[3]{2}$$

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

$$\left\{ \begin{array}{l} d = \frac{h \cdot \sqrt[3]{4}}{\sqrt[3]{2}^2} \\ d = \frac{h \cdot \sqrt[3]{4}}{2} \end{array} \right.$$

\textcircled{4}



$a = \text{cateto lateral}$   
 $17$   
 $A = \text{cateto}$   
 $8$   
 $\text{base mayor}$

$A = \text{cateto}$   
 $5$   
 $\text{base menor}$

\*  $a = \text{cateto}$   
 $17$   
 $\text{base menor}$

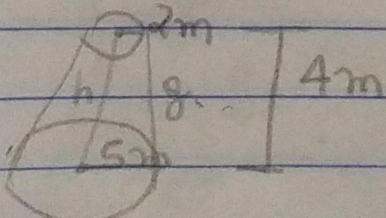
$$\begin{array}{l} \text{Diagram of a right triangle with legs } 5 \text{ cm and } 8 \text{ cm.} \\ g = 5 \text{ cm} \end{array}$$

$$(A-a) = 8-5=3 \text{ cm}$$

$$\left\{ \begin{array}{l} 5^2 = H^2 + 3^2 \\ H^2 = 25 - 9 \end{array} \right.$$

$$H = \sqrt{16} = \boxed{4 \text{ cm}}$$

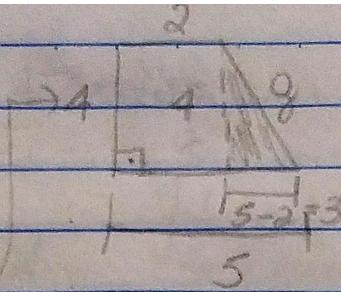
$$\textcircled{5} \quad AT = ?, \quad V = ? \quad V = \pi \cdot \frac{h}{3} (R^2 + r^2 + R \cdot r)$$



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

$$\rightarrow V = \pi \cdot \frac{4}{3} \cdot (25 + 4 + 10) \rightarrow V = \pi \cdot \frac{4}{3} \cdot \frac{39}{3} \dots \boxed{\text{AFAPEL}}$$

$$V = [50\pi \text{ m}^3]$$



$$\begin{aligned} 8^2 &= 4^2 + 3^2 \quad (E) \\ 8^2 &= 16 + 9 \\ g &= \sqrt{25} = 5 \text{ cm} \end{aligned}$$

22m

J8

$$AT = Ab_{\text{rechteck}} + Ab_{\text{seitlich}} + AL$$

$$AT = \pi \cdot 5^2 + \pi \cdot 2^2 + \frac{(2\pi \cdot 5 + 2\pi \cdot 2) \cdot 5}{2}$$

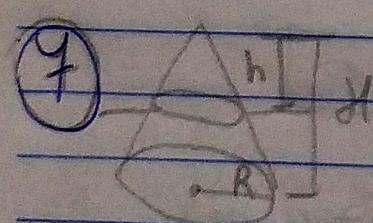
$$\hookrightarrow AT = 25\pi + 4\pi + (14\pi) \cdot 5 \rightarrow AT =$$

$$AT = 29\pi + 35\pi = [64\pi \text{ m}^2]$$

$$\textcircled{6} \quad \begin{array}{l} \text{Diagram of a cylinder with radius } R = 3 \text{ cm and height } H = 5 \text{ cm.} \\ 8^2 = H^2 + (R-M)^2 \Rightarrow H^2 = 25 - 16 \\ 5^2 = H^2 + (7-3)^2 \Rightarrow H = \sqrt{9} = 3 \text{ cm} \end{array}$$

$$V = \frac{\pi \cdot H}{3} \cdot (R^2 + M^2 + R \cdot M) \rightarrow V = \pi \cdot (49 + 9 + 21)$$

$$V = \frac{\pi \cdot 3}{3} \cdot (7^2 + 3^2 + 7 \cdot 3) \rightarrow V = [79\pi \text{ m}^3] \text{ D}$$



$$V_{\text{Volumen gesamt}} = V_{\text{Trichter}}$$

$$V_{\text{Volumen gesamt}} = V_{\text{Volumen großer}} - V_{\text{Volumen kleiner}}$$

$$2V_{\text{Volumen kleiner}} = V_{\text{Volumen großer}}$$

$$V_{\text{Volumen großer}} = 2 = K3 \quad \left\{ K = \sqrt[3]{2} \right.$$

$$V_{\text{Volumen kleiner}}$$

$$H = K$$

$$h$$

$$\rightarrow h = H \cdot \sqrt[3]{4}$$

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

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

AFAPPEL