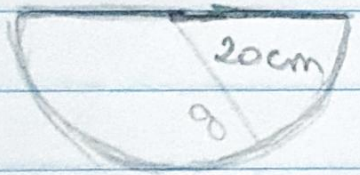
Tarefa Básica

1-)



$g = 20$ cm

$g = 2r$

$20 = 2r$

$r = 10$ cm

$g^2 = h^2 + r^2$

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

$400 = h^2 + 100$

$h^2 = 300$

$h = 10\sqrt{3}$ cm

(A)

2-)

$h = 12$ cm

$V = 64\pi$ cm^3

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

$192 = r^2 \cdot 12$

$r^2 = 16$

$r = 4$ cm

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

$g^2 = 144 + 16$

$g^2 = 160$

$g = 4\sqrt{10}$ cm

(B)

3-) 

$36\pi = \pi r^2$

$r = 6\ cm$

$V = 72\pi\ cm^3$

$h = r$

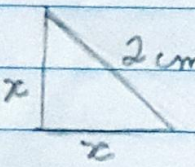
$A_B = 36\pi\ cm^2$

$V = ?$

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

$V = \frac{216}{3}\pi$

(A)

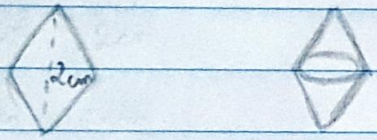
4-) 

$h = 1\ cm$

$2^2 = 2x^2$

$4 = 2x^2$

$x = \sqrt{2}\ cm$



$\sqrt{2}^2 = 1^2 + r^2$

$2 = 1 + r^2$

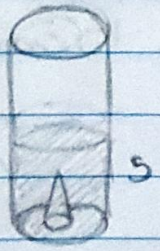
$r^2 = 1$

$r = 1\ cm$

(E)

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

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

5-) 

$VC = \pi r_C^2 . (h_C/2)$

$VC = \pi 3^2 . 5$

$VC = 45\pi$

$V = 45\pi - \pi$

$V = 44\pi$

$r_C = 3$

$h_C = 10$

$r_c = 1$

$h_c = 3$

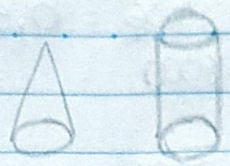
$V_c = \frac{1}{3}\pi r_c^2 . h_c$

$V_c = \frac{1}{3}\pi 1 . 3$

$V_c = \pi$

(E)

6.)

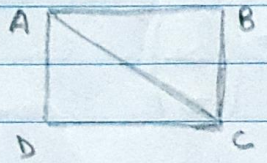


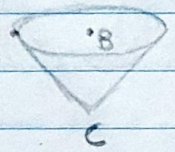
$$\frac{V_C}{V_c} = \frac{\pi r^2 \cdot 2/3 h}{\frac{1}{3}\pi r^2 h} = \frac{\frac{2}{3}}{\frac{1}{3}} = \frac{6}{3} = 2$$

$$\frac{A_{BC}}{h} = \frac{A_{BC}}{\frac{2}{3}h}$$

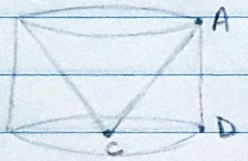
(A)

7.)





$$V_1 = \frac{1}{3}\pi r^2 h$$

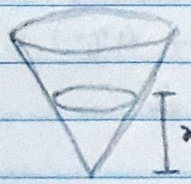


$$V_2 = \pi r^2 h - \frac{1}{3}\pi r^2 h$$

(E)

$$\frac{V_1}{V_2} = \frac{\frac{1}{3}\pi r^2 h}{\pi r^2 h - \frac{1}{3}\pi r^2 h} = \frac{\frac{1}{3}\pi r^2 h}{\frac{2}{3}\pi r^2 h} = \frac{3}{6} = \frac{1}{2}$$

1.)



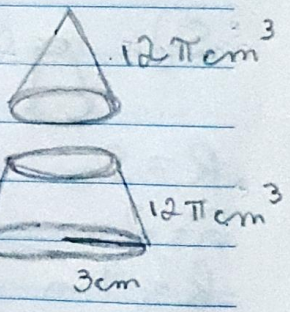
$h = 8\,cm$

$r = 3\,cm$

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

$$V_T = \frac{1}{3}\pi\, 72$$

$$V_T = 24\pi\,cm^3$$



$$g^2 = 64 + 9$$

$$g^2 = 73$$

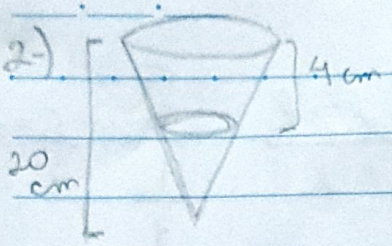
$$g = \sqrt{73}\,cm$$

$$\frac{24}{12} = \left(\frac{8}{x}\right)^3 \rightarrow 2 = \frac{512}{x^3} \rightarrow x^3 = 256$$

(E)

$$x = 4\sqrt[3]{4}\,cm$$

2-)

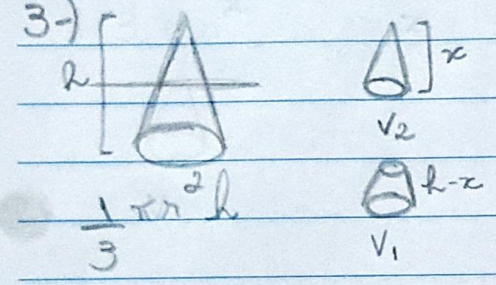


$$\frac{V_{SOBRA}}{V_{COPO}} = \left(\frac{16}{20}\right)^3 = \frac{4096}{8000} = 0{,}512$$

$$1 - 0{,}512 = 0{,}448 \cong 50\%$$

(C)

3-)



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

$V_1 = V_2$

$$\frac{1/3\pi r^2 h}{1/6\pi r^2 h} = \left(\frac{h}{x}\right)^3$$

$$\frac{1}{2} = \frac{h^3}{x^3}$$

4-)

a m = 8 cm

a m = 5 cm

a l = 5 cm

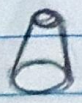
$$a^2 = h^2 + (A-a)^2$$

$$5^2 = h^2 + (8-5)^2$$

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

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

5-)



R = 5 m

r = 2 m

h = 4 m

g = 5 m

$$A_T = 25\pi + 4\pi + \frac{(10\pi + 4\pi).5}{2}$$

$$A_T = 29\pi + \frac{70\pi}{2}$$

$$A_T = 64\pi \text{ m}^2$$

$$V = \pi \frac{4}{3}(25 + 4 - 5.2)$$

$$V = \frac{76}{3}\pi \text{ m}^3$$

6-) 

$R = 7\,cm$

$r = 3\,cm$

$g = 5\,cm$

$V = ?$

$h = 3\,cm$

$$V = \frac{\pi h (R^2 + r^2 + R.r.)}{3}$$

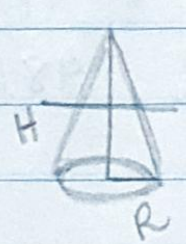
$$V = \frac{\pi 3 (49 + 9 - 21)}{3}$$

$$V = 37\pi\,cm^3$$

$$g^2 = h^2 + (R-r)^2$$

$$25 = h^2 + 16$$

$$h = 3$$

7-) 

$$\frac{R}{H} = \frac{r}{h} \rightarrow r = \frac{Rh}{H}$$

$$V_T = \frac{1}{3}\pi R^2 H$$

$$V_{CP} = \frac{1}{3}\pi\left(\frac{Rh}{H}\right)^2 h$$

$$V_{CP} = \frac{\pi R^2 h^3}{3H^2}$$

$$V_{TRONCO} = \frac{\pi R^2 H}{3} - \frac{\pi R^2 h^3}{3H^2}$$

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

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

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

$$2h^3 = H^3$$

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

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

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

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