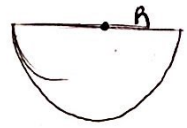
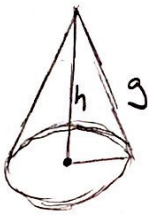
TAREFA: CONES E TRONCOS.

CONES:

1.





R: 20 cm
R = g
g = 20 cm

A semi = A lateral

$1/2 . \pi . r^2 = \pi . r . g$

$1/2 . \pi . 20^2 = \pi . r . 20$

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

$\pi . 400 = \pi r . 40$

$r = 400/40 \rightarrow 10$

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

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

$400 = h^2 + 100$

$400 - 100 = h^2$

$300 = h^2$

$h = \sqrt{300}$

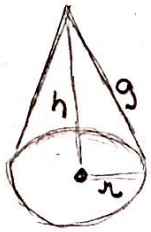
$h = \sqrt{2^2 . 3 . 5^2}$

$h = 10\sqrt{3}$ cm

300	2
150	2
75	3
25	5
5	5
1	

R: A

2.



h = 12 cm

$V = 64\pi$ cm²

g = ?

$V = 1/3 . \pi . r^2 . h$

$64\pi = 1/3 . \pi . r . 12$

$64 . 3 = r^2 . 12$

$192 = r^2 . 12$

$r^2 = 192/12$

$r^2 = 16 \rightarrow \sqrt{16}$

$r = 4$

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

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

$g^2 = 160$

$g = \sqrt{160}$

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

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

$g = 4\sqrt{10}$

160	2
80	2
40	2
20	2
10	2
5	5
1	

R: B

3.

h = r

$A_{base} = 36\pi$ cm

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

$r^2 = 36 \rightarrow \sqrt{36}$

$r = 6$

h = 6

$V = 1/3 . \pi . r^2 . h$

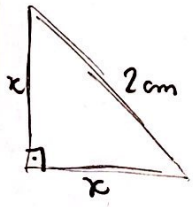
$V = 1/3 . \pi . 6^2 . 6$

$V = \pi . 36 . 2$

$V = 72\pi$ cm²

R: A

4.

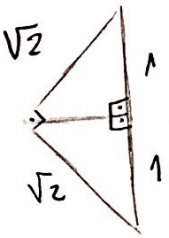


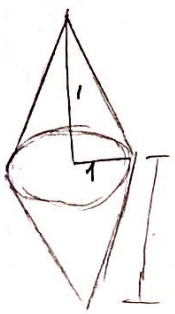
$2^2 = x^2 + x^2$

$4 = 2x^2$

$x^2 = 2$

$x = \sqrt{2}$



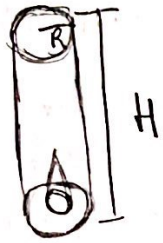


$V = \frac{\pi . 1^2 . 1}{3} \rightarrow V = \frac{\pi 1}{3}$

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

R: E

5.



$V_{cilindro} = \pi . r^2 . H/2$

$V = \pi . 3^2 . 10/2$

$V = \pi . 9 . 5$

$V = 45\pi$

$H = 10$

$R = 3$

$h = 3$

$r = 1$

$V_{cone} = 1/3 . \pi . r^2 . 3$

$V = 1/3 . \pi . 1^2 . 3$

$V = \pi$

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

$V = 44\pi$

R: E

6. $\frac{V.\ prisma}{V\ cone} = \frac{A\ base\ prism.\ 2/3 . h}{1/3 . A\ base\ cone . h}$

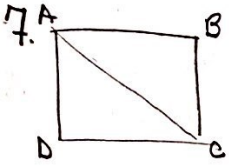
$A_{base}P = A_{base}C$

$Altura\ C = 2/3\ Altura\ P$

$\frac{VP}{VC} = \frac{2/3 . K}{1/3 . K} \rightarrow \frac{2}{1}$

$\frac{VP}{VC} = 2$ R: A

7.



$AB = 2$ $AD = 1$

$V_{ABC} = \frac{\pi . 2^2 . 1}{3} = \frac{4\pi}{3}$

$V_{ADC} = (\pi . 2^2 . 1) - V_{ABC}$

$V_{ADC} = \frac{4\pi}{4} - \frac{4\pi}{3} \rightarrow \frac{12\pi - 4\pi}{3}$

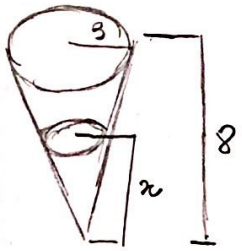
$V_{ADC} = 8\pi/3$

$\frac{4\pi/3}{8\pi/3} \rightarrow \frac{4}{8} \rightarrow \frac{1}{2}$

R: E

TRONCOS:

1.



$V_{CM} = 1/3 . \pi . r^2 . h$

$V_{CM} = 1/3 . \pi . 3^2 . 8$

$V_{CM} = 1/3 . \pi . 9 . 8$

$V_{CM} = \pi . 3 . 8$

$V_{CM} = 24\pi \ cm^2$

$V_m = 1/2 . V_{CM}$

$V_m = 1/2 . 24\pi$

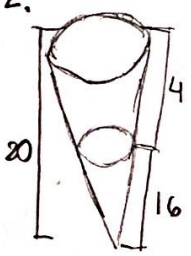
$V_m = 12\pi \ cm^2$

Razão: $\frac{V_{CM}}{V_m} = \left(\frac{x}{8}\right)^3 \rightarrow \frac{12\pi}{24\pi} = \frac{x^3}{8^3} \rightarrow \frac{1}{2} = \frac{x^3}{8^3} \rightarrow 2.x^3 = 8^3$

$x^3 = \frac{4.2.8^2}{2} \rightarrow \sqrt[3]{x^3} = \sqrt[3]{4.2^3.2^3} \rightarrow x = 2.2\sqrt[3]{4} \rightarrow x = 4\sqrt[3]{4}$

R: E

2.



$\frac{V_m}{V_{CM}} = \left(\frac{16}{20}\right)^3 \rightarrow \left(\frac{8}{10}\right)^3$

$\frac{V_m}{V_{CM}} = \frac{512}{1000} \rightarrow 51,2\%$

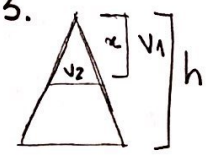
$V_{espuma} = V_{CM} - V_m$

$100\% - 51,2$

$48,8\% \simeq 50\%$

R: E

3.

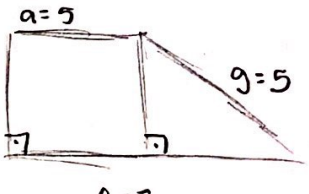


$\frac{V_2}{V_1} = \frac{1}{2}$

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

$x^3 = \frac{h^3}{2} \rightarrow x = \frac{\sqrt[3]{h^3}}{\sqrt[3]{2}} \rightarrow x = \frac{h}{\sqrt[3]{2}} . \frac{\sqrt[3]{2^3}}{\sqrt[3]{2^3}} \rightarrow x = \frac{h\sqrt[3]{4}}{2}$

4.



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

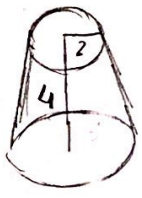
$5^2 = h^2 + (8-5)^2$

$25 = h^2 + 9$

$h = 25 - 9 \rightarrow \sqrt{16}$

$h = 4 \ cm$

5.



$g^2 = 4^2 + 3^2$

$g^2 = 16 + 9$

$g^2 = \sqrt{25}$

$g = 5m$

$V = \frac{\pi 4}{3} . (5^2 + 10 + 2^2)$

$V = \frac{4\pi}{3} . 25 + 10 + 4$

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

$V = \frac{156\pi}{3}$

$V = 52\pi$

$A_l = \pi 5(2+5) = 35\pi$

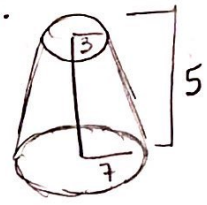
$A_B = \pi 5^2 = 25\pi$

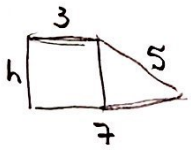
$A_b = \pi 2^2 = 4\pi$

$A = 35\pi + 25\pi + 4\pi$

$A = 64\pi$

6.





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

$h = 9$

$h = 3\,cm$

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

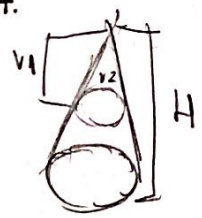
$V = \pi . 49 + 21 + 9$

$V = 79\pi$

R: D

Obs: gabarito errado

7.



$\frac{V_2}{V_1} = \frac{1}{2}$

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

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

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

R: A