Nome: Gabriely Cristina Silva Santos CTII: 317

ESFERAS E SUAS PARTES

1) c) pois a esfera pode ser formada pela rotação de 360° de um semicírculo em volta do seu diâmetro.

2) $V = \frac{4\pi R^3}{3}$ $V_1 = \frac{4\pi \cdot 1^3}{3} = \frac{4}{3}\pi$ → Volume da esfera de raio 1

$V_2 = \frac{4\pi R^3}{3}$ → $\frac{\cancel{4\pi} R^3}{\cancel{3}} = 1.000.000 \cdot \frac{\cancel{4\pi}}{\cancel{3}}$

$R^3 = 10^6$

$R = \sqrt[3]{10^6}$

$R = 10^2 = \boxed{100}$

3)

Volume esfera:

$V_E = \frac{4\pi R^3}{3}$

Volume cilindro

raio $= 2r$ $V_c = \pi r^2 h$

$h = 4r$ $V_c = \pi \cdot 4r^2 \cdot 4r$

$V_c = 16\pi r^3$

Razão:

$x = \frac{V_E}{V_c} = \frac{\left(\frac{4\pi r^3}{3}\right)}{16\pi r^3} = \frac{\frac{4}{3}}{16} = \frac{4}{3} : 16 = \frac{4}{3} \cdot \frac{1}{16} = \frac{\cancel{4}}{3 \cdot \cancel{16}} = \frac{1}{3 \cdot 4} = \frac{1}{12}$

(E)

4) Volume das duas esferas = V cilindro

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

$V = \frac{4}{3} \cdot 1 + \frac{4}{3}\pi \cdot 8 = \frac{4\pi}{3} + \frac{32\pi}{3} = 12\pi$

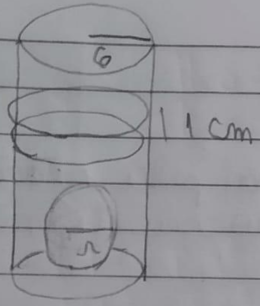
$12\pi = \pi r^2 \cdot 3$

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

$r^2 = 4$ B)

$r = \sqrt{4} = 2$

5



$V_{cilindro} = \pi \cdot 6^2 \cdot 1 = 36\pi$

$V_{esfera} = \dfrac{4}{3}\pi \cdot r^3$

$\dfrac{4}{3}\pi \cdot r^3 = 36\pi$

$\cancel{4}\cancel{\pi} \cdot r^3 = \cancel{108}\cancel{\pi}$

$r^3 = 27$

$r = \boxed{3\text{ cm}}$ c)

6 $V_E = 288\pi$

$\dfrac{4\cancel{\pi} r^3}{3} = 288\cancel{\pi}$

$r^3 = \dfrac{864}{4}$

$r = \sqrt[3]{216}$

$r = 6$

$2R = 12$

$a = 12$ E)

7) V cilindro

$V_C = \pi . r^2 . h$

$V_C = \pi . 10^2 . 16$

$V_C = 1600\pi \, cm^3$

Volume de um doce em formato de bolinha

$V_D = \frac{4\pi . r^3}{3}$

$V_D = \frac{4\pi . 2^3}{3}$

$V_D = \frac{32\pi}{3}$

número de doces

$N = \frac{V_C}{V_B}$

$N = \frac{1600\pi}{\left(\frac{32\pi}{3}\right)}$

$N = \frac{4800}{32} = \boxed{150}$ D

8) $V = \frac{1}{2} . \frac{4}{3} . \pi R^3 = \pi R^2 . H = \frac{1}{3} . \pi R^2 . h$

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

$2R = 3H$

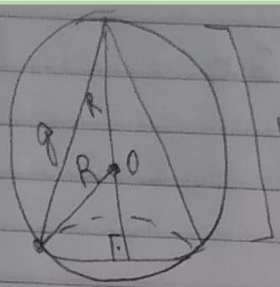
$\pi . R^2 . H = \frac{1}{3} . \pi . R^2 . h$

$h = 3H$

$\boxed{2R = h = 3H}$

INSCRIÇÃO E CIRCUNSCRIÇÃO DE SÓLIDOS

1



$SE = 100\pi$

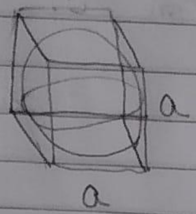
$4\cancel{\pi}R^2 = 100\cancel{\pi}$

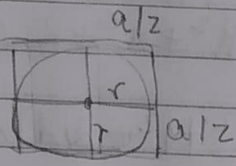
$R^2 = \frac{100}{4}$

$R = \sqrt{25} = 5$

(não consegui chegar a 3 m)

2





Área da superfície do cubo:

$Sc = 6.a^2$

medida do raio da esfera

↳ metade da aresta do cubo

$r = \frac{a}{2}$

Área da superfície da esfera

$SE = 4\pi.r^2$

$SE = 4.\pi.\left(\frac{a}{2}\right)^2$

$SE = \frac{4\pi.a^2}{4}$

$SE = \pi.a^2$

Razão:

$\frac{SE}{Sc} = \frac{\pi.a^2}{6.a^2} = \boxed{\frac{\pi}{6}}$ A)

3 $VE = \frac{4\pi R^3}{3}$ $\begin{cases} Vc = a^3 \\ Vc = \left(\frac{2\sqrt{3}R}{3}\right)^3 \end{cases}$

$d_0 = 2R$

$a\sqrt{3} = 2R$

$a = \frac{2R}{\sqrt{3}} . \frac{\sqrt{3}}{\sqrt{3}}$

$a = \frac{2\sqrt{3}.R}{3}$

$Vc = \frac{8.3\sqrt{3}.R^3}{27}$

$Vc = \frac{24\sqrt{3}R^3}{27}$

$\frac{VE}{Vc} = \frac{\frac{4\pi R^3}{3}}{\frac{24\sqrt{3}R^3}{27}} = \frac{108\pi \cancel{R^3}}{72\sqrt{3}\cancel{R^3}}$

$= \frac{3\pi}{2\sqrt{3}} . \frac{\sqrt{3}}{\sqrt{3}} = \frac{\cancel{3}\sqrt{3}\pi}{2.\cancel{3}} =$

$= \boxed{\frac{\sqrt{3}\pi}{2}}$ B)

4. $RB = 3$ $\quad H_{co} = h_{c1} \Rightarrow \frac{12}{6} = \frac{H - x}{x}$

$H = 12$ $\quad D_{co} = D_{c1}$

$12x = 6.12 - 6x$

$r = 2$ $\quad 18x = 72$

$V_{c1} = 2\pi r^3$ $\quad x = 4 = 2R$

$V_{c1} = 2\pi 2^3$

$V_{c1} = \boxed{16\pi \, cm^3}$

5. $V_{SOL} = V_{TRO} = \frac{\pi h}{3} (R^2 + r^2 + R.r)$

$R = 2$

$r = 1$

$= \frac{\pi 1}{3} (2^2 + 1^2 + 2.1)$

$= \frac{\pi 1}{3} (2^2 + 1^2 + 2.1)$

$= \frac{\pi 1}{3} (4 + 1 + 2) = \frac{\pi . 1 + (7)}{3} = \frac{8\pi}{3} \, cm^3$