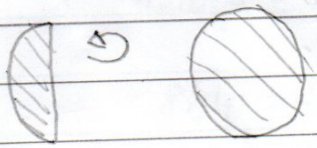
Tarefa Básica - Esferas

1) (C)



2) $V = 4/3\ \pi R^3$

$V_1 = 4/3\pi 1^3 = 4/3\pi$ $\quad V_2 = 4/3 R^3$

$4/3\pi R^3 = 1\,000\,000\ 4/3\pi$

$R^3 = 1\,000\,000$

$R = \sqrt[3]{10^6} = 10^2 = 100$

3) $V_e = \frac{4\pi r^3}{3}$ $\quad V_c = \pi r^2 h$

$r = 2R$

$h = 4R$

$V_c = \pi 4r^2 4r = 16\pi r^3$

$\frac{\frac{4\pi r^3}{3}}{16\pi r^3}$ $\quad \frac{4\pi}{48\pi} : 4$ $\quad \frac{1}{12}$ (E)

4) $4/3\pi 1^3 + 4/3\pi 2^3 = \pi r^2 3$

$4/3\pi + 4/3\pi.8 = \pi r^2 3$

$8/3\pi.8 = \pi r^2 3$

$8 : 8/3 = 3r^2$

5) $V_c = \pi 6^2 \cdot 1 = 36\pi$

$V_e = 4/3\ \pi r^3$

$4/3\ \pi r^3 = 36\pi$

$4\pi r^3 = 108\pi$

$r^3 = 27$

$r = 3$ (C)

7) $V_p = 10^2 \pi 16$

$V_p = 1600\pi$

$V_b = 4/3\ \pi 2^3 = 32\pi/3$

$\frac{1600\pi}{1} \div \frac{32\pi}{3} \Rightarrow \frac{1600}{1} \times \frac{3}{32}$

$\frac{4800}{32} = 150$ (D)

8) $4/3\pi r^3 = 2\pi r^2 H = 2\ 1/3\ \pi r^2 h$

$4/3\ r^3 = 2r^2 H = 2\ 1/3\ r^2 h$

$4r^3 = 6r^2 H = 2r^2 h$: 2

$2r^3 = 3r^2 H = r^2 h$: r

$2r^2 = 3rH = rh$: r

$2r = 3H = h$

(D)

6) $a = d$ $\quad V_E = 4/3\ \pi r^3$

$a = 2r$ $\quad 288\pi = 4/3\ \pi r^3$

$864 = 4r^3$ $\quad r = \sqrt[3]{216}$

$r^3 = 216$ $\quad r = 6$

$a = 2 \cdot 6$

$a = 12$ (E)

Tarefa Básica - Inscrição e circunscrição de sólidos

1)

2) a = aresta
$c = 6 \cdot a^2$ $\quad r = a/2$

$Se = 4\pi r^2$
$Se = 4\pi (a/2)^2$
$Se = 4\pi a^2/4$
$Se = \pi a^2$

$\frac{\pi a^2}{6a^2}$ (A)

3) $R = d/2$
$R = \frac{a\sqrt{3}}{2}$

$\frac{V_E}{V_C} = \frac{\frac{4\pi r^3}{3}}{a^3} = \frac{\frac{4\pi (a\sqrt{3}/2)^3}{3}}{a^3}$

$\frac{\frac{4\pi}{3} \frac{a^3 \cdot 3\sqrt{3}}{8}}{a^3} \Rightarrow \frac{12\sqrt{3}\pi}{24}$

$\frac{\sqrt{3}\pi}{2}$ (B)

4) $h = 2r$

$\frac{2r}{3-r} = \frac{12}{3}$ $\quad 3 \cdot 2r = 12(3-r)$

$6r = 36 - 12r$

$36 = 18r$

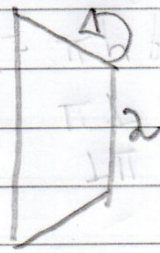
$r = 2$

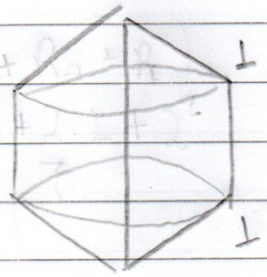
$V_c = \pi r^2 h$

$\pi 2^2 (2.2)$

$V_c = \boxed{16\pi}$ ___ ^{3}

5)





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

$\frac{\pi}{3} \cdot 2 = \frac{2\pi}{3}$ $\quad V_{cil} = \frac{2\pi r^3}{2\pi} = 2\pi 1^3$

$V = \frac{2\pi}{3} + 2\pi$

$V = \frac{6\pi + 2\pi}{3} = \boxed{\frac{8\pi}{3}}$