Cilindros / Pirâmides

1) $V = \pi r^2 . h$

$V = \pi 10^2 . 40 = 4000\pi$ volume

$4000\pi / 5 = 800\pi$ quantidade de água

$V = \pi . 5^2 h = 800\pi$ altura

$25h = 800\pi$

$h = 32cm$ (A)

2) $\frac{V_1}{V_2} = \frac{1}{27}$ $\frac{\pi (r_1)^2 . h_1}{\pi (r_2)^2 . h_2} = \frac{1}{27}$

$h_1 = 2r_1$ $h_2 = 8 . 2r_2 = 16r_2$

$\frac{r_1^2 . 2r_1}{r_2^2 . 16r_2} = \frac{1}{27}$ $\left(\frac{r_1}{r_2}\right)^3 = \frac{8}{27}$

$\frac{r_1}{r_2} = \frac{2}{3}$ (E)

3) $V_1 = 16\pi$ $A = 2\pi r^2 + 2\pi r h$

C_1 $16\pi = \pi r^2 h$

$r^2 h = 16$ $r_{C2} = 2/3\ r_{C1}$

$2\pi (3/2 r (3/2 r + h)$

$3h = 2r + 2h$ $h = 2r$

$n^2 \cdot 2n = 16$

$n = 2 \qquad h = 2n \qquad h = 4$ (D)

4) $V = \pi n^2 4$

$\pi (n+12)^2 4 = \pi n^2 (4+12)$

$\pi (n^2 + 24n + 144) 4 = \pi n^2 16$

$\pi (4n^2 + 96n + 576) = \pi n^2 16$

$12n^2 - 96n - 576 = 0$

$n^2 - 8n - 48 = 0$

$\Delta = 8^2 - 4 \cdot 1 \cdot (-48)$

$\Delta = 64 + 192$

$\Delta = 256$

$n = \frac{-8 \pm 16}{2} = 12$

(A)

5) $r = 20\,cm$

$h = 0{,}8\,mm = 0{,}08\,cm$

$V = \pi 20^2 h = 400\pi \cdot 0{,}08 = 32\pi$

$V = 400\pi \cdot 0{,}08 = 32\pi \cong 100\,cm^3$ (B)

$V = \pi 20^2 h$