Forma Básica - Cilindros

01 -

$h = 40\ cm$
$R_1 = 10\ cm$
$R_2 = 5\ cm$

$V_1 = \pi R^2 . 40$
$V_1 = 3 . 10^2 . 40$
$V_1 = 300 . 40$
$V_1 = 12.000\ cm^3$

$V_2 = \pi R^2 . 40$
$V_2 = 3,5^2 . 40$
$V_2 = 75 . 40$
$V_2 = 3.000\ cm^3$

$\frac{1}{5} . 12.000 = 2.400\ cm^3$

V	h
3000	40
2400	x

$3000x = 2400 . 40$
$x = \frac{96000}{3000}$
$x = 32\ cm$

$\boxed{h = 32\ cm}$

(A)

02 -

(1) h_1 = diâmetro do Bico
(2) $R_2 = 8$. diâmetro do Bico

Razão entre V_1 e V_2: $\frac{1}{27}$

$\frac{V_1}{V_2} = \frac{1}{27}$ | $\frac{A_{b1} . R_1}{A_{b2} . R_2} = \frac{1}{27}$ | $\frac{\pi R_1^2 . R_1 . 2}{\pi R_2^2 . 8 . R_2 . 2} = \frac{1}{27}$

$\frac{R_1^3}{R_2^3 . 8} = \frac{1}{27}$ | $\sqrt[3]{\frac{R_1^3}{R_2^3}} = \sqrt[3]{\frac{8}{27}}$ | $\boxed{\frac{R_1}{R_2} = \frac{2}{3}}$

(F)

03 -

$A_{Total_1} = A_{lateral_2}$
$V_1 = 16\pi$
$h = ?$

$V_1 = A_{b1} . h$
$16\pi = \pi R_1^2 . h$
$R_1^2 . h = 16$
$R_1^2 . 2R_1 = 16$
$2R_1^3 = 16$
$R_1^3 = 8$
$\boxed{R_1 = 2}$

$\boxed{R_2 = 1,5 R_1}$

$A_{tot_1} = 2\pi R_1^2 + 2\pi R_1 . h$
$A_{lateral_2} = 2\pi R_2 . h$

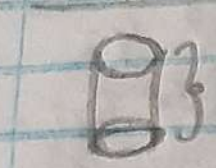
$2\pi . 1,5 R_1 . h = 3\pi . R_1 . h$

$3\pi R_1 . h = 2\pi R_1^2 + 2 . \pi R_1 . h$
$\pi R_1 . h = 2\pi R_1^2$
$h = \frac{2\pi R_1^2}{\pi R_1}$

$h = 2R_1$
$\boxed{h = 4}$

(D)

04-



$V = \pi R^2 . h$

(1) $V = \pi (R+12)^2 . 4$

(2) $V = \pi R^2 . (4+12)$ ← um dos

$V = \pi . (R+12)^2 . 4 = \pi R^2 (4+12)$

$V = \pi . (R^2 + 24R + 144) . 4 = \pi R^2 (16)$

$V = 4R^2 + 96R + 576 = 16R^2$

$V = -12R^2 + 96R + 576 = 0 \quad (\div 12)$

$V = -R^2 + 8R + 48 = 0 \quad (.-1)$

$V = R^2 - 8R - 48 = 0$

$\Delta = 64 - 4 . 1 . -48$

$\Delta = 256$

$\Delta = 16$

$x = \frac{8 \pm 16}{2} =$ $x1 = 12$ ✓ > 0

$x2 = -4$ x

$R = 12$

(A)

05-

1 cm - 10 mm

x = 0,8 mm

$10x = 0,8$

$x = \frac{0,8}{10}$

$x = 0,08 cm$

$V = \pi R^2 . h$

$V = 3,14 . 20^2 . 0,08$

$V = 3,14 . 400 . 0,08$

$V \approx 100,5 cm^3$

(B)

Tarefa Básica - Pirâmides

01 - $a = x$ cm
$D = 2x$ cm
$h = 8$ cm
$V = 48$ cm^3
$x = ?$

$A_B = a \cdot 2x$
$A_B = 2x^2$

$V = \frac{1}{3} A_B \cdot h$

$48 = \frac{1}{3} 2x^2 \cdot 8$

$\frac{144}{8} = 2x^2$

$x^2 = \frac{18}{2}$ | $\boxed{x = 3}$

(C)

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02 - $A_{Base} = 80 \cdot 80 = 6400$ mm^2

$A_{lateral} = \frac{4 \cdot l \cdot A}{2} = 2 \cdot 80 \cdot 50 = 8000$ mm^2

$A_{total} = 6400 + 8000 = \boxed{14400}$ (E)

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03 -

h no lateral $= \frac{l\sqrt{3}}{2}$

$A = \frac{\sqrt{6}}{2}$

$A^2 = hP^2 + a^2$

$\left(\frac{\sqrt{6}}{2}\right)^2 = h^2 + \left(\frac{\sqrt{2}}{2}\right)^2$

$h^2 = \left(\frac{\sqrt{2}}{2}\right)^2 + \left(\frac{\sqrt{6}}{2}\right)^2$

$h^2 = 2$

$h \cong 1$

(C)

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04 - $A_{Base} = 6 \cdot \left(l^2 \frac{\sqrt{3}}{4}\right)$

$A_{Base} = 6a^2 \frac{\sqrt{3}}{4}$

$A_{Base} = 3a^2 \frac{\sqrt{3}}{2}$

$V = \frac{1}{3} \cdot \left(3a^2 \frac{\sqrt{3}}{2}\right) \cdot b\sqrt{3}$

$V = a^2 \frac{\sqrt{3}}{2} \cdot b\sqrt{3}$

$\boxed{V = \frac{3a^2 b}{2}}$ (A)

05- $A_{Box} = 6 \cdot \left(\frac{l^2\sqrt{3}}{4}\right)$

$A_{Box} = 6 \cdot \frac{4^2\sqrt{3}}{4}$

$A_{Box} = 24\sqrt{3}$

$V = \frac{1}{3} \cdot 24\sqrt{3} \cdot 6\sqrt{3}$

$V = 8 \cdot 6 \cdot 3$

$V = \boxed{144\ cm^3}$

(D)

06- $A_{Box} = 6 \cdot \left(\frac{l^2\sqrt{3}}{4}\right)$

$A_{Box} = 6 \cdot \left(\frac{6}{6}\right)^2 \frac{\sqrt{3}}{4}$

$A_{Box} = \frac{3\sqrt{3}}{2}$

$V = \frac{1}{3} \cdot \frac{3\sqrt{3}}{2} \cdot 8$

$V = 4\sqrt{3}$

(A)

07- $V_{Prisma} = V_{Pirâmide}$ - 60

$A_b \cdot h_1 = \frac{1}{3} A_b \cdot h_2$

2a Base

$a^2 \cdot h_1 = \frac{1}{3} 4a^2 \cdot h_2$

$h_1 = \frac{1}{3} \cdot 4h_2$ - 20

a Base

$\boxed{\frac{h_2}{h_1} = \frac{3}{4}}$ ← Razão (A)

08- $A_{total} = 4\left(\ell^2 \frac{\sqrt{3}}{4}\right)$

$6\sqrt{3} = 4\ell^2 \frac{\sqrt{3}}{4}$

$\ell = \sqrt{6}$

$h = \ell \frac{\sqrt{6}}{3}$

$h = \sqrt{6} \cdot \frac{\sqrt{6}}{3}$

$\boxed{h = 2}$

(A)