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Cilindros

01. altura = 40 cm

raios = 10 cm e 5 cm

maior = 1 de água

Volume do cilindro 1 parte preenchida

$V_1 = \pi \cdot 100 \cdot \dfrac{1}{5} \cdot 40$

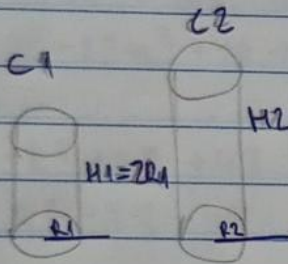$V_1 = \pi \cdot 20 \cdot 40$

$V_1 = 800\pi \ cm^3$

$V_1 = V_2$

$800\pi = \pi \cdot 25 \cdot H$

$8 \cdot 4 \cdot 25 = 25 \cdot H$

$32 = H$

$H = 32 \ cm$ //

Resposta A

02. C1

H2 = 16 R2

H1 = 2 R1

$\dfrac{V_1}{V_2} = \dfrac{1}{27}$

$\left(\dfrac{R_1}{R_2}\right)^3 = \dfrac{8}{27}$

$\dfrac{\pi (R_1)^2 \cdot H_1}{\pi (R_2)^2 \cdot H_2} = \dfrac{1}{27}$

$\dfrac{R_1}{R_2} = \dfrac{2}{3}$ //

Resposta e

$\dfrac{(R_1)^2 \cdot 2R_1}{(R_2)^2 \cdot 16 R_2} = \dfrac{1}{27}$

03.

$C_2 = C_1$

Altura dos cilindros

$$2 \pi R . H = 2 \pi R (R + H)$$

$$2 \pi \frac{3}{\chi} RH = 2 \pi R (R + H)$$

$H + R = 4$

Resposta D

$$3H = \frac{2 \pi R (R + H)}{\pi R}$$

$$3H = 2(R + H)$$

$$3H = 2R + 2H$$

$$3H = 2R = 2H$$

$$H = 2R$$

$$V_1 = 16 \pi$$

$$\pi R^2 . H = 16 \pi$$

$$R^2 . H = \frac{16 \pi}{\pi}$$

$$R^2 . H = 16$$

$$R^2 . 2R = 16$$

$$R^3 = \frac{16}{2}$$

$$R^3 = 8$$

$$R = \sqrt[3]{8}$$

$$R = 2$$

04.

$V = \pi . n^2 . H$

nesca o raio da Base

$R = (R+12)^2$
$H = R^2(4+12)$

$V = \pi . R^2 . H$
$V = \pi . (R+12)^2 . 4 = R^2 . (4+12)$
$V = \pi (n^2 + 24n + 144) . 4 = R^2 + 16$
$V = \pi . (4n^2 + 96n + 576) . 4 = R + 16R^2$
$V = \pi . 4n^2 + 96R - 16R^2 + 576$
$V = \pi -12R^2 + 96 + 576 \div 12$

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

$R^2 - 8n - 48$

$-4 + 12 = 8$
$-4 . 12 = -48$

Raio $= 12cm$ //
Resposta A

05.

$VD = \pi \cdot R^2 \cdot H$

$VD = \pi \cdot (20)^2 \cdot 0,08$

$VD = \pi \cdot 400 \cdot 0,08$

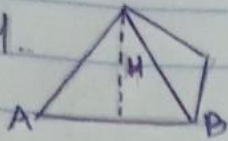$Vd = 32\pi$

$VP = VD$

$VP = 32\pi$

$VP = 32 \cdot 3,14$

$VP = 100,48 \, cm^3$

$VP \approx 100,5 \, cm^3 //$

Resposta B

Pirâmides

01.

$A = X$ cm

$B = 2X$ cm

$H = 8$ cm

Volume $= 48$ cm³

Area Base

$A = B.H$

$A = X.2x$

$A = 2x^2$ cm²

Valor de X

$V = \dfrac{A.H}{3}$

$48 = \dfrac{2x^2.8}{3}$

$16x^2 = 48.3$

$16x^2 = 144$

$x^2 = \dfrac{144}{16}$

$x^2 = 9$

$x^2 = \sqrt{9}$

$x = 3 //$

Resposta C

02
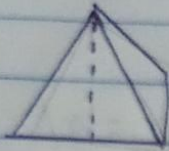
Area total = 14400 mm²
Altura = 30 mm
Base quadrada = 80 mm

Altura das triangulos

$$H^2 = \left(\frac{80}{2}\right)^2 + 30^2 = \frac{6400}{4} + 900$$

$$H^2 = 1600 + 900 = 2500$$
$$H^2 = \sqrt{2500}$$
$$H = 50 \, mm$$

Area total

$$A_t = 4 \cdot \left(\frac{80 \cdot 50}{2}\right) + 80^2 = 4 \cdot \frac{4000}{2} + 6400$$

$$A_t = 8000 + 6400$$
$$A_t = 14400 \, mm^2 \, /\!/$$

Resposta E

04.

$$AB = \frac{3l^2\sqrt{3}}{2}$$

$$AB = \frac{3a^2\sqrt{3}}{2}$$

$$V = \frac{1}{3} \cdot Vp$$

$$V = \frac{1}{3} \cdot AB \cdot H$$

$$V = \frac{1}{3} \cdot \frac{3a^2\sqrt{3}}{2} \cdot b\sqrt{3}$$

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

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

$$V = \frac{3a^2 \, b}{2} \, cm^3 /\!/ \qquad \text{Resposta A}$$

05.

$$V = A_B \cdot H$$

$$V = 3.4^2 \cdot \frac{\sqrt{3}}{2} \cdot 6\sqrt{3}$$

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

$$V = 24 \cdot 6 \cdot 3$$

$$V = 432 \ cm^3 //$$

Resposta D

06.

Área Base pirâmide

$$A_B = \frac{6.1^2 \cdot \sqrt{3}}{4}$$

$$A_B = \frac{6\sqrt{3}}{4}$$

$$A_B = \frac{3\sqrt{3}}{2} \ cm^2$$

Volume pirâmide

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

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

$$V = 4\sqrt{3} \ cm^3 //$$

Resposta A

07.

Area Base pirâmide

$AB = (2a)^2 = 4a^2$

$V_{P1} = \dfrac{4a^2 \cdot H_{P1}}{3}$

Area Base prisma

$AB = a^2$

$V_{P2} = a^2 \cdot H_{P2}$

Razão entre As alturas

$\dfrac{4a^2 \cdot H_{P1}}{3} = a^2 \cdot H_{P2}$

$\dfrac{H_{P1}}{H_{P2}} = \dfrac{3a^2}{4a^2}$

$\dfrac{H_{P1}}{H_{P2}} = \dfrac{3}{4}$ //

Resposta A

08. Area total do tetraedro

$At = a^2\sqrt{3}$

$6\sqrt{3} = a^2\sqrt{3}$

$a = \sqrt{6}$

Altura

$H = \dfrac{a\sqrt{6}}{3}$

$H = \dfrac{\sqrt{6} \cdot \sqrt{6}}{3}$

$H = \dfrac{\sqrt{36}}{3}$

$H = \dfrac{6}{3}$

$H = 2 \ cm //$

Resposta A