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Cilindros e Pirâmides:

Cilindros:

1.

① $V1 = Ab1 . h$ $\quad$ $V2 = Ab2 . h$

$V1 = \pi r^2 . 40$ $\quad$ $V2 = \pi r^2 . h$

$V1 = 3 . 10^2 . 40$ $\quad$ $V2 = 3 . 5^2 . 40$

$V1 = 300 . 40$ $\quad$ $V2 = 75 . 40$

$V1 = 12000 cm^3$ $\quad$ $V2 = 3000 cm^3$

$\frac{1}{5}$ de $12000 = 2400$

$3000 \quad 40$

$2400 \quad X$

$3000X = 2.400.40$

$X = \frac{96\cancel{000}}{3\cancel{000}}$

$X = 32 cm$

R: A) 32 cm

R: a) 32cm

2.

② $\frac{V1}{V2} = \frac{1}{27} \rightarrow \frac{Ab1 . h1}{Ab2 \; h2} = \frac{1}{27} \rightarrow \frac{\cancel{\pi} r1^2 . r1 . \cancel{X}}{\cancel{\pi} r2^2 . 8 . r2 . \cancel{X}} = \frac{1}{27} \rightarrow$

$\rightarrow \frac{r1^2 . r1}{r2^2 . r2 . 8} = \frac{1}{27} \rightarrow \frac{r1^3}{r2^3 . 8} = \frac{1}{27} \rightarrow \frac{r1^3}{r2^3} = \frac{8}{27} \rightarrow \sqrt[3]{\frac{r1^3}{r2^3}} = \sqrt[3]{\frac{8}{27}}$

$\rightarrow \frac{r1}{r2} = \frac{2}{3}$ $\quad$ R: E) $\frac{2}{3}$

R: e) $\frac{2}{3}$

3.

③ $V_1 = Ab_1 \cdot h$

$16\cancel{\pi} = \cancel{\pi} r_1^2 \cdot h$

$r_1^2 \cdot h = 16$

$r_1^2 \cdot 2r = 16$

$2r_1^3 = 16$

$r_1^3 = 8$

$r_1 = \sqrt[3]{8}$

$r_1 = 2$

$A_{total_1} = 2\pi r_1^2 + 2\pi r_1 \cdot h \qquad r_2 = 1{,}5 r_1$

$A_{lateral_2} = 2\pi r_2 \cdot h = 2\pi \cdot 1{,}5 r_1 \cdot h = 3\pi r_1 \cdot h$

$3\pi r_1 \cdot h = 2\pi r_1^2 + 2\pi r_1 \cdot h$

$\pi r_1 \cdot h = 2\pi r_1^2$

$h = \dfrac{2\cancel{\pi r_1^2}}{\cancel{\pi r_1}}$

$h = 2 \cdot r_1$

$h = 2 \cdot 2$

$h = 4$

$\boxed{R: D)\ 4}$

R: d) 4

4.

D S T Q Q S S

D L M M J V S

④ $V = \pi r^2 \cdot h$

$1^{\circ}: V = \pi (r+12)^2 \cdot 4$

$2^{\circ}: V = \pi r^2 \cdot (4+12)$

$\rightarrow V = \cancel{\pi}(r+12)^2 \cdot 4 = \cancel{\pi} r^2 \cdot (4+12)$

$V = (r^2 + 24r + 144) \cdot 4 = r^2 \cdot 16$

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

$V = -12r^2 + 96r + 576 = 0 \quad \div 12$

$V = -r^2 + 8r + 48$

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

$\Delta = 64 + 192$

$\Delta = 256$

$\sqrt{256} = 16$

$x' = \dfrac{-8+16}{-2} \rightarrow \dfrac{8}{-2} \rightarrow \cancel{x' = -4}$

$x' = \dfrac{-8-16}{-2} \rightarrow \dfrac{-24}{-2} \rightarrow x'' = 12$

$r = 12$

$\boxed{R: A)\ 12}$

R: a) 12

5.

(5) $1cm \times 10mm$

$x \times 0,8mm$

$10x = 0,8$

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

$x = 0,08cm$

$V = \pi r^2 . h$

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

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

$V = 100,5cm^3$

R: B) 100,5cm³

R: b) 100,5cm³

Pirâmides:

1.

(1) $Ab = x . 2x$

$Ab = 2x^2$

$V = \frac{1}{3} Ab . h = \frac{1}{3} 2x^2 . 8$

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

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

$x^2 = \frac{18}{2} \rightarrow x = 3$

R: C) X = 3,0

R: c) x = 3,0

2.

② $A_{base} = 80.80 = 6400\,mm^2$

$A_{lateral} = \frac{4.l.A}{2} = 2.80.50 = 8000\,mm^2$

$A_{total} = 6400 + 8000 = 14400$

R: E) 14400

R: e) 14400

3.

③ $h_{lateral} = \frac{l\sqrt{3}}{2}$

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

$A^2 = h_{pirâmide}^2 + a^2$

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

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

$h^2 = -0,5 + 1,5$

$h = \sqrt{1}$

$h = 1$

R: C) 1

R: c) 1

4.

④ $A_{base} = 6.\left(l^2 \frac{\sqrt{3}}{4}\right) = 6a^2 \frac{\sqrt{3}}{4} = 3a^2 \frac{\sqrt{3}}{2}$

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

R: A) $\frac{3a^2.b}{2}$

R: a) $\frac{3a^2 * b}{2}$

5.

$$A_{base} = 6 \cdot \left(\frac{l^2\sqrt{3}}{4}\right) = 6 \cdot \frac{4^{\cancel{2}}\sqrt{3}}{\cancel{4}} = 6 \cdot 4\sqrt{3} = 24\sqrt{3}$$

$$V = \frac{1}{\cancel{3}} \cdot 24\sqrt{\cancel{3}} \cdot 6\sqrt{\cancel{3}} \rightarrow V = 8 \cdot 6 \cdot 3 \rightarrow V = 144 cm^3 \quad \boxed{R: D) \ 144 cm^3}$$

R: d) 144cm³

6.

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

$$V = \frac{1}{\cancel{3}} \cdot \frac{\cancel{3}\sqrt{3}}{\cancel{2}} \cdot \cancel{8} \rightarrow V = 4\sqrt{3} \qquad \boxed{R: A) \ 4\sqrt{3}}$$

R: a) 4√3

7.

$$V_{prisma} = V_{pirâmide} \rightarrow h_1 = \frac{1}{3} \cdot 4 h_2$$

$$A_b \cdot h_1 = \frac{1}{3} A_b \cdot h_2 \qquad \frac{h_2}{h_1} = \frac{3}{4} \qquad \boxed{R: A) \ \frac{3}{4}}$$

$$\cancel{x} \cdot h_1 = \frac{1}{3} 4\cancel{x}^{\cancel{2}} \cdot h^2$$

R: a) $\frac{3}{4}$

8.

(8) $A_{total} = 4\left(\frac{l^2\sqrt{3}}{4}\right)$

$6\cancel{\sqrt{3}} = \cancel{4}\, l^2 \frac{\cancel{\sqrt{3}}}{\cancel{4}}$

$l = \sqrt{6}$

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

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

$h = 2$

$\boxed{R: A)\ 2}$

R: a) 2