Exercícios - cilindro

01- $V = \pi r^2 h$
$V = 3 \cdot 10^2 \cdot 40$
$V = 12000\ cm^3$

$V = \pi r^2 h$
$2400 = 3 \cdot 5^2 \cdot h$
$h = \frac{2400}{75} = 32\ cm$

A

1/5 de 12000 = 24000 cm^3

02- $\frac{C1}{C2} \frac{\pi r_1^2 h_1}{\pi r_2^2 h_2} = \frac{1}{27}$

$\frac{r_1^2 \cdot 2r}{r_2^2 \cdot 16r} = \frac{1}{27}$

$\frac{2r_1^3}{16r_2^3} = \frac{1}{27}$

$54r_1^3 = 16r_2^3$

$\left(\frac{r_1}{r_2}\right)^3 = \frac{16}{54} \div 2$

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

$\frac{r_1}{r_2} = \sqrt[3]{\frac{8}{27}} = \frac{2}{3}$

E

03- $V = 2\pi r^3$
$16\pi = 2\pi r^3$
$16 \cdot 3 = 2 \cdot 3 \cdot r^3$
$r^3 = \frac{48}{6}$
$r = \sqrt[3]{8} = 2$

$h = 2r$
$h = 2 \cdot 2$
$h = 4$

D

04- $V = \pi . r^2 . h$

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

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

$16r^2 . \cancel{\pi} = \cancel{\pi} . (4r^2 + 96r + 576)$

$16r^2 - 4r^2 - 96r - 576 = 0$

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

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

$\Delta = 64 - 4.1.(-48)$

$\Delta = 64 + 192$

$\Delta = 256$

A

$r_1 = \frac{8+16}{2} = 12$ cm

$r_2 = \frac{8-16}{2} = \cancel{-4 \text{ cm}}$

05- $V = \pi r^2 h$

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

$V = 100,48 \cong 100,5$ cm^3

$\frac{0,8 \text{ mm}}{10} = 0,08$ cm

B

Pirâmide - Exercícios

01- $V = \frac{Ab . h}{3}$

$Ab = 2x . x = 2x^2$

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

$48 = \frac{16x^2}{3}$

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

$x = \sqrt{9} = 3$ cm

C

02- $Ab = 80^2 = 6400$ mm^2

$Al = A\Delta . 4$

$Al = 2000 . 4 = 8000$

$h\Delta \Rightarrow h^2 = 40^2 + 30^2$

$h = \sqrt{2500} = 50$ mm

$A\Delta = \frac{80 . 50}{2} = 2000$ mm^2

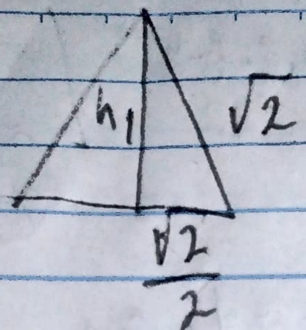
$AT = Ab + Al$

$AT = 6400 + 8000$

$AT = 14400$ mm^2

E

03 -



$(\sqrt{2})^2 = h_1^2 + \left(\frac{\sqrt{2}}{2}\right)^2$

$2 = h_1^2 + \frac{2}{4}$

$h^2 = \frac{2}{1} - \frac{2}{4} = \frac{6}{4} = \sqrt{\frac{3}{2}}$ cm^2

$\left(\sqrt{\frac{3}{2}}\right)^2 = h_2^2 + \left(\frac{\sqrt{2}}{2}\right)^2$

C

$\frac{3}{2} = h^2_2 + \frac{2}{4}$

$h_2^2 = \frac{3}{2} - \frac{2}{4} = \frac{6-2}{4} = \frac{4}{4} = 1$

$h = \sqrt{1} = 1$ cm

04 - $A_{Hex} = \frac{6 l^2 \sqrt{3}}{4} = \frac{6 a^2 \sqrt{3}}{4}$

$V = \frac{Ab \cdot h}{3} = \frac{\frac{6 a^2 \sqrt{3}}{4}}{3} \cdot b\sqrt{3} = \frac{6 a^2 \sqrt{3}}{12} \cdot b\sqrt{3} \; :6$

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

05 - $A_{Hex} = \frac{6 l^2 \sqrt{3}}{4} = \frac{6 \cdot 4^2 \sqrt{3}}{4} = \frac{96\sqrt{3}}{4} = 24\sqrt{3}$ cm^2

$V = \frac{Ab \cdot h}{3} = \frac{24\sqrt{3} \cdot 6\sqrt{3}}{3} = \frac{144 \cdot \cancel{3}}{\cancel{3}} = 144$ cm^3

D

06- $\frac{6 l^2 \sqrt{3}}{4}$

$l_{Hx} = \frac{6}{6} = 1\ cm$

$V = \frac{\frac{6\sqrt{3}}{4} \cdot 8}{3} = \frac{48\sqrt{3}}{12} = 4\sqrt{3}\ cm^3$

A

07- $Ab = (2a)^2$

$Ab = 4a^2$

Razão = $\frac{3}{4}$

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

A

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

$3a^2 \cdot h_1 = 4a^2 \cdot h_2$

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

08- $6\cancel{\sqrt{3}} = l^2 \cancel{\sqrt{3}}$

$l = \sqrt{6}$

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

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

A

$h = \frac{6}{3} = 2\ cm$