Exercícios

01 - $h = 3m \quad AT = 80 cm^2$

$AT = 2 \cdot A_B + A_L$

$80 = 2 \cdot (x^2) + 4(3x)$

$80 = 2x^2 + 12x$

$2x^2 + 12x - 80 = 0 \div 2$

$x^2 + 6x - 40$

$\Delta = 36 - 4 \cdot 1 \cdot (-40)$

$\Delta = 36 + 160$

$\Delta = 196$

$x_1 = \dfrac{-6 + 14}{2} = \boxed{4m}$

$x_2 = \dfrac{-6 - 14}{2} = -\cancel{10}$

02 - $A_{Hx} = \dfrac{3 l^2 \sqrt{3}}{2}$

$24\sqrt{3} = \dfrac{3 l^2 \sqrt{3}}{2}$

$48\sqrt{3} = 3 l^2 \sqrt{3}$

$16\sqrt{3} = l^2 \sqrt{3}$

$l^2 = \dfrac{16\sqrt{3}}{\sqrt{3}}$

$l = \sqrt{16} = 4$

$A_L = (h \cdot l) 6$

$A_L = (2\sqrt{3} \cdot 4) 6$

$A_L = (8\sqrt{3}) 6$

$A_L = 48\sqrt{3} \ cm^2$
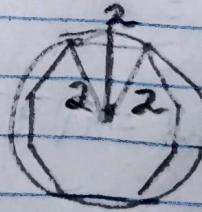
03 - $A_{Hex} = \dfrac{3 l^2 \sqrt{3}}{2}$

$A_{Hex} = \dfrac{3 \cdot 4\sqrt{3}}{2}$

$A_{Hex} = 6\sqrt{3}$

$AB = A_{Hex}$

$A_L = (l \cdot h) 6$

$A_L = (2\sqrt{3}) 6$

$A_L = 12\sqrt{3}$

$AT = 2 A_B + A_L$

$AT = 2(6\sqrt{3}) + A_L$

$AT = 12\sqrt{3} + 12\sqrt{3}$

$AT = 24\sqrt{3}$

$\boxed{B}$
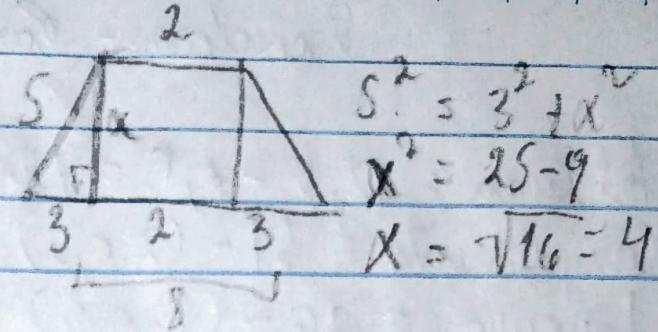
04. $V = Ab \cdot h$

$V = 20 \cdot 5$

$V = 100 \, m^3$

(D)

$S^2 = 3^2 + x^2$

$x^2 = 25 - 9$

$x = \sqrt{16} = 4$

$A_{Trap} = \dfrac{(8+2) \cdot 4}{2}$

$A_{Trap} = 20 \, m^2$

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05. $V = Ab \cdot h$

$V = 75 \cdot 10$

$V = 750 \, cm^3$

(C)

$Ab = A\triangle$

$A\triangle = \dfrac{b \cdot h}{2}$

$A\triangle = \dfrac{10 \cdot 15}{2} = 75 \, cm^2$

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06. $AT = 2AB + AL$

$4x^2 = 2xy + 2(xz + yz) : 2$

$2x^2 = xy + xz + yz$

$2x^2 = xy + x \cdot 2y + y \cdot 2y$

$2x^2 = 3xy + 2y^2$

$2y^2 + 3xy - 2x^2 = 0$

$\triangle = 9x^2 - 4 \cdot 2 \cdot (-2x^2)$

$\triangle = 9x^2 + 16x^2$

$\triangle = 25x^2$

$y_1 = \dfrac{-3x + 5x}{4} = \dfrac{2x}{4} = \dfrac{x}{2}$

$y_2 = \dfrac{-3x - 5x}{4} = \dfrac{-8x}{4} = -2x$

$z = 2y$

$z = 2 \cdot \dfrac{x}{2} = x$

$V = x \cdot y \cdot z$

$V = x \cdot \dfrac{x}{2} \cdot x$

$V = \dfrac{x^3}{2}$

(C)

Exercícios – Paralelepípedos e Cubos.

01- Altura = $12,5 - 0,5 = 12$ cm   espessura = $0,5$ cm
Comprimento = $51 - (2 \cdot 0,5) = 50$ cm
Largura = $26 - (2 \cdot 0,5) = 25$ cm

$V = h \cdot c \cdot l$
$V = 12 \cdot 50 \cdot 25$
$V = 15000$ cm³ $\rightarrow \dfrac{V}{10^6} = \dfrac{15000}{10^6} = 0,015$ m³ Ⓐ

02- $AT = 72$ m²

$AT = 6a^2$
$72 = 6a^2$
$a^2 = 12$
$a = 2\sqrt{3}$

$D = a\sqrt{3}$
$D = 2\sqrt{3} \cdot \sqrt{3}$
$D = 6$ m   Ⓑ

03- $V = a^3$
$V = 50^3$
$V = 125000$ cm³

Em litros $\rightarrow \dfrac{V}{1000} = \dfrac{125000}{1000} = 125 \ell$

Ⓐ

04- $V = a^3$
$V = 1$ m³

1 m³ —— 1000ℓ
x —— 1ℓ

$1000x = 1$
$x = \dfrac{1}{1000} = 0,001$ m³

05- Vamos supor um paralelepípedo de medidas 2 cm $\times 4$ cm $\times 5$ cm:

$V = 2 \cdot 4 \cdot 5 = 40$ cm³ $\left\{ \begin{array}{l} V = 2 \cdot (4 \cdot 2) \cdot (5 \cdot 2) \\ V = 2 \cdot 8 \cdot 10 = 160 \text{ cm}^3 \end{array} \right.$ $\left\{ \begin{array}{l} \text{Logo} \therefore \ \ Ⓒ \\ 160/40 = 4 + 4V \end{array} \right.$

$06 -$

$V = A_{cube}$

$V = (4\sqrt{3})^3$

$V = 192\sqrt{3} \, cm^3$

$A_\triangle = A_B$

$A_B = \dfrac{l^2 \sqrt{3}}{4}$

$A_B = \dfrac{(4\sqrt{3})^2 \sqrt{3}}{4}$

$A_B = 12\sqrt{3} \, cm^2$

$V = h \cdot A_B$

$192\sqrt{3} = h \cdot 12\sqrt{3}$

$h = \dfrac{192\sqrt{3}}{12\sqrt{3}} = 16 \, cm$

$A_L = (l \cdot h) \cdot 3$

$A_L = (4\sqrt{3} \cdot 16) \cdot 3$

$A_L = 192\sqrt{3} \, cm^2$

$A_T = 2A_B + A_L$

$A_T = 2(12\sqrt{3}) + 192\sqrt{3}$

$A_T = 24\sqrt{3} + 192\sqrt{3}$

$A_T = 216\sqrt{3} \, cm^2$

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