INSTITUTO FEDERAL
São Paulo
Câmpus Cubatão

TAREFA BÁSICA 30: ÁREA DE PRISMAS E PARALELEPÍPEDO

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Exercício 1, 2 e 3:

① $A_T = 4 \cdot 3x + 2x^2$

$80 = 12x + 2x^2$

$2x^2 + 12x - 80 \} \div 2$

$x^2 + 6x - 40$

$x = -6 \pm \sqrt{196} / 2$ | $a = 1$ | $\Delta = 6^2 - 4 \cdot 1 \cdot (-40)$

$x = \frac{-6 \pm 14}{2}$ | $b = 6$ | $36 + 160$

$c = -40$ | 196

$x' = \frac{-6+14}{2} = \frac{8}{2} = 4 \to 4m$

$x'' = \frac{-6-14}{2} = \frac{-20}{2} = -10$

② $24\sqrt{3} = (6\ell^2 \cdot \sqrt{3})/4$ | $A_L = 4 \cdot 2\sqrt{3} \cdot 6$

$4 \cdot 24 = 6\ell^2$ | $A_L = 24 \cdot 2\sqrt{3}$

$\frac{96}{6} = \ell^2$ | $A_L = 48\sqrt{3}\ cm^2$

$\sqrt{16} = \ell$

$4 = \ell$

③ $A_b = \frac{6 \cdot 2^2\sqrt{3}}{4}$ | $A_L = 6 \cdot 2\sqrt{3}$ $a = 2$

$A_L = 12\sqrt{3}\ cm^2$

$A_b = 6\sqrt{3}\ cm^2$

$A = 12\sqrt{3} + 2 \cdot 6\sqrt{3}$

$A = 24\sqrt{3}\ cm^2$

Exercício 4, 5 e 6:

(4) $A = \frac{(B+b)h}{2}$ $h_p = 5$

$A = \frac{(8+2)}{2} 4$

$A = 20$

$V = 20 \cdot 5$

$V = 100$

(5) $Ab = \frac{(b\ h)}{2}$

$Ab = \frac{(15\ 10)}{2}$

$Ab = 75cm^2$

$V = 75 \cdot 10$

$V = 750cm^3$

(6)
$$\begin{cases} A_T = 2(xy + xz + zy) \\ z = 2y \\ A_T = 4x^2 \end{cases}$$

$2[xy + x(2y) + (2y)y] = 4x^2$

$xy + 2xy + 2y^2 + 2y_2 = 2x^2$

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

$y = \frac{-3x \pm \sqrt{9x^2 - 4(2)(-2x^2)}}{4}$

$y = \frac{-3x \pm \sqrt{9x^2 + 16x^2}}{4}$

$y = -3x \pm \sqrt{25x^2} / 4$

$y = -3x \pm 5x / 4$

$y' = \frac{-3x + 5x}{4} = \frac{x}{2}$

$y'' = \frac{-3 - 5x}{4} = \frac{-8x}{4}$

$V = x\left(\frac{x}{2}\right)\left(2\frac{x}{2}\right)$

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

Exercício 1, 2, 3 e 4:

1

$c = 51 - 2 \cdot 0{,}5 = 50\,cm$

$\ell = 26 - 2 \cdot 0{,}5 = 25\,cm$

$a = 12{,}5 - 0{,}5 = 12\,cm$

$\frac{50}{100} = 0{,}5 \quad \frac{25}{100} = 0{,}25 \quad \frac{12}{100} = 0{,}12$

$0{,}5 \cdot 0{,}25 \cdot 0{,}12 = 0{,}015\,m^2$

2

$A_T = 6x^2$

$72 = 6x^2$

$x^2 = \frac{72}{6}$

$x = 2\sqrt{3}$

$d = 2\sqrt{3} \cdot \sqrt{3}$

$d = 2 \cdot 3$

$d = 6\,m$

3

$V = 5^3$

$V = 125\,m^3$

4

$\frac{1}{1-x} = \frac{1000}{999}$

$1000 \cdot (1-x) = 999$

$-1000x = -1 \quad \times(-1)$

$1000x = 1$

$x = \frac{1}{1000}$

$x = 0{,}001\,m$

Exercício 5 e 6:

(5) $V = a \cdot b \cdot c$

$V = 2a \cdot 2b \cdot c \rightarrow 2 \times 2 = 4V$

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

$V = 64 \cdot 3\sqrt{3}$

$V = 192\sqrt{3}$

$V = \dfrac{h\,(l^2\sqrt{3})}{4}$

$192\sqrt{3} = \dfrac{h\,((4\sqrt{3})^2 \cdot \sqrt{3})}{4}$

$192\sqrt{3} = \dfrac{h\,(16 \cdot 3\sqrt{3})}{4}$

$192\sqrt{3} \cdot 4 = h \cdot 48\sqrt{3}$

$h = \dfrac{(4 \cdot 192\sqrt{3})}{48\sqrt{3}}$

$h = 4 \cdot 4 \cdot 16$

$A_T = \dfrac{2((4\sqrt{3})^2 \cdot \sqrt{3})}{4} + 3 \cdot 16 \cdot 4\sqrt{3}$

$A_T = \dfrac{2((16 \cdot 3)\sqrt{3})}{4} + 192\sqrt{3}$

$A_T = \dfrac{2 \cdot (48\sqrt{3})}{4} + 192\sqrt{3}$

$A_T = 2 \cdot 4\sqrt{3} + 192\sqrt{3}$

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

$A_T = 216\sqrt{3}$