Tarefa Básica – Prismas

01.
$A = 80 = 2x^2 + 4(3x) = 2x^2 + 12x \rightarrow 2x^2 + 12x - 80 = 0 \ (\div 2)$

$$x^2 + 6x - 40 = 0$$
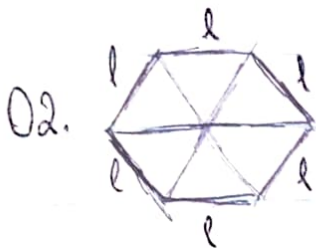
40	2
20	2
10	2
5	5

$\dfrac{-10 + 4}{\ } = -6$

$\dfrac{-10 \cdot 4}{\ } = -40$

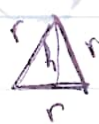não
convém

$\boxed{x = 4}$ $\boxed{4 \text{ cm}}$

02.

$A = \dfrac{24\sqrt{3}}{6} = 4\sqrt{3} \ \text{cm}^2$

$\dfrac{\ell^2 \sqrt{3}}{4} = 4\sqrt{3} \rightarrow \ell^2\sqrt{3} = 16\sqrt{3} \rightarrow \ell^2 = 16 \rightarrow \ell = 4 \ \text{cm}$

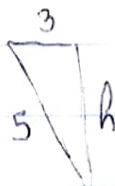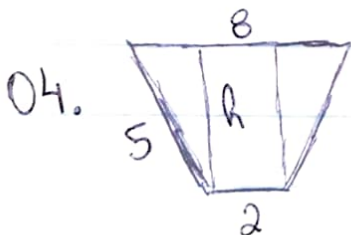

$A = 6(4 \cdot 2\sqrt{3}) = \boxed{48\sqrt{3} \ \text{cm}^2}$

03.
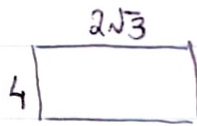
$\ell = 2 = r$

$r^2 = h^2 + \left(\dfrac{r}{2}\right)^2$

$2^2 = h^2 + \left(\dfrac{2}{2}\right)^2$

$h^2 = 4 - 1 \rightarrow h = \sqrt{3} \ \text{cm}$

$S_\Delta = \dfrac{2 \cdot \sqrt{3}}{2}$

$S_\Delta = \sqrt{3} \ \text{cm}^2$

$S_\Diamond = 6 \cdot S_\Delta = 6 \cdot \sqrt{3} \ \text{cm}^2$

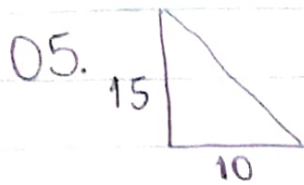$A = 2(6\sqrt{3}) + 6(2\sqrt{3}) = 12\sqrt{3} + 12\sqrt{3} = \boxed{24\sqrt{3}}$ (B)

04.

$h^2 = 5^2 - 3^2$

$h = 4$

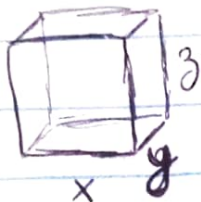$S = \dfrac{(8+2)h}{2}$

$S = 10 \cdot 4 / 2 = 20 \ \text{m}^2$

$V = 20 \cdot 5 = \boxed{100 \ \text{m}^3}$ (D)

05.

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

$V = S \cdot h = 75 \cdot 10 = \boxed{750 \, cm^3}$ (c)

06.

$A = 4x^2 = 2xy + 2xz + 2yz$

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

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

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

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

$z = 2y$

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

$a = 2$
$b = 3x$
$c = -2x^2$

$\Delta = (3x)^2 - 4 \cdot 2 \cdot (-2x^2)$

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

$\Delta = 25x^2$

$y = \dfrac{-3x \pm \sqrt{25x^2}}{2 \cdot 2} = \dfrac{-3 \pm 5x}{4}$

$y' = \dfrac{x}{2}$

$y'' = -2x$ → não convém

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

$V = x \cdot y \cdot z = x \cdot \dfrac{x}{2} \cdot x = \boxed{\dfrac{x^3}{2}}$ (c)

Paralelepípedos e cubos

01. $V = (51 - 2 \cdot 0,5) \cdot (26 - 2 \cdot 0,5) \cdot (12,5 - 0,5)$

$V = (50 \cdot 25 \cdot 12)$

$V = 15\,000 \, cm^3$

$\boxed{V = 0,015 \, m^3}$ (A)

02. $A = 6\ell^2 = 72$
$\ell^2 = 12 \rightarrow 2\sqrt{3} = \ell$

$D = \ell\sqrt{3} = 2\sqrt{3} \cdot \sqrt{3} = 2 \cdot 3 = \boxed{6 \text{ m}}$
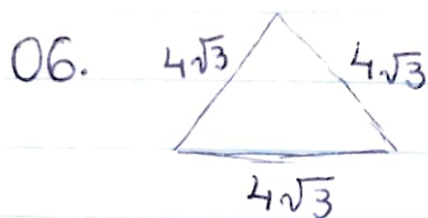(B)

03. $V = 5^3 = \boxed{125}$ (A)

04. $V = \ell^3 = 1 \text{ m}^3 = 1000 L \rightarrow \dfrac{1 L}{1000 L} = \boxed{0,001 \text{ m}}$

05. $a \cdot b \cdot c = V$
$2a \cdot 2b \cdot c = X$

$X = \dfrac{4a \cdot b \cdot c \cdot V}{a \cdot b \cdot c} = \boxed{4V}$ (C)

06.

$S_\triangle = \dfrac{(4\sqrt{3})^2 \sqrt{3}}{4} = 4 \cdot 3\sqrt{3} = 12\sqrt{3}$

$V_{cubo} = (4\sqrt{3})^3 = 48 \cdot 4\sqrt{3} = 192\sqrt{3}$

$V_\triangle = 192\sqrt{3} = 12\sqrt{3} \cdot h \rightarrow h = \dfrac{192\sqrt{3}}{12\sqrt{3}} = 6 \text{ cm}$

$A = 2(12\sqrt{3}) + 3(16 \cdot 4\sqrt{3})$
$A = 24\sqrt{3} + 192\sqrt{3}$
$\boxed{A = 216\sqrt{3} \text{ cm}^2}$ (D)