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TAREFA BÁSICA - PRISMAS, PARALELEPÍPEDOS E CUBOS

→ PRISMAS

① $A_t = 80 m^2$

Altura = 3m

lado = ?

$A_t = 2A_B + A_L$

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

$2l^2 + 12l - 80 = 0$

$b^2 - 4 \cdot a \cdot c$

$\Delta = 12^2 - 4 \cdot 2 \cdot (-80)$

$\Delta = 144 + 640$

$\Delta = 784$

$l = \dfrac{-b \pm \sqrt{784}}{2 \cdot a}$

$l = \dfrac{-12 \pm 28}{4}$

$l' = \dfrac{16}{4} = \boxed{4m}$    $l'' = \dfrac{-40}{4} = -10$

NÃO

CONVÉM

② $A_B = 24\sqrt{3} cm^2$

Altura $= 2\sqrt{3} cm$

$A_L = ?$

PRISMA HEXAGONAL REGULAR:

$A_B = \dfrac{6 l^2 \sqrt{3}}{4}$

$24\sqrt{3} = \dfrac{6 l^2 \sqrt{3}}{4}$

$96 = 6 l^2$

$l^2 = \dfrac{96}{6}$

$l = \sqrt{16} = 4 cm$

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

$A_L = 24 \cdot 2\sqrt{3}$

$A_L = 48\sqrt{3} cm^2$

③ Altura: $\sqrt{3}$          Prisma reto hexagonal regular:
  Dia = 1                      $AB = \dfrac{6 \cdot \ell^2 \sqrt{3}}{4}$
  At = ?
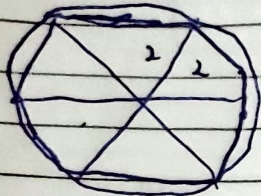


$AB = 6\sqrt{3}_{//}$          $At = 2AB + AL$

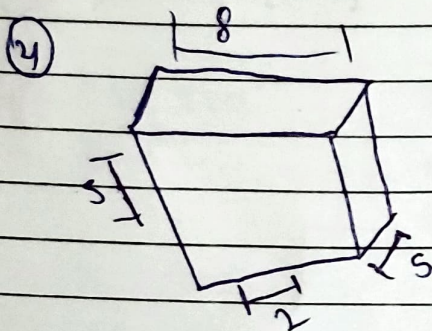$AL = 6 \cdot 2\sqrt{3}$       $At = 2 \cdot 6\sqrt{3} + 12\sqrt{3}$

$AL = 12\sqrt{3}$             $At = 12\sqrt{3} + 12\sqrt{3}$

                              $At = 24\sqrt{3}$

Alternativa B

④



$B = 8$
$b = 2$
$V = ?$



$\rightarrow 5^2 = 3^2 + h^2$          $\rightarrow AB = \dfrac{(2+8) \cdot 4}{2}$

$25 = 9 + h^2$                          $AB = \dfrac{10 \cdot 4}{8}$

$h^2 = 16$

$h = \sqrt{16} = 4_{//}$               $AB = 20$

$V = AB \cdot h$
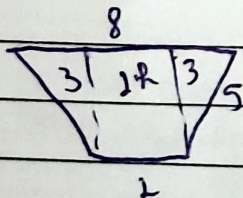
$V = 20 \cdot 5 = 100 \, m^3$

Alternativa D

⑤ V = ABC

$V' = 2a.2B.c \rightarrow V' = 4aBc$ ou seja $V' = 4V$//

Alternativa C

⑥ Lado = $4\sqrt{3}$ cm – equilátero

$V = (4\sqrt{3}) = 64.3\sqrt{3} = 192\sqrt{3}$ cm³

At = ?

R = ?

$$h = \frac{4\sqrt{3} \cdot \sqrt{3}}{2} = 6 \, cm$$

$$AB = \frac{4\sqrt{3} \cdot 6}{2} = 12\sqrt{3} \, cm^2$$

$$R_D = \frac{192\sqrt{3}}{12\sqrt{3}} = 16 \, cm$$

$$Al = 3 \cdot 4\sqrt{3} \cdot 16 = 192\sqrt{3} cm^2$$

At = 2AB + Al

At = $2 \cdot 12\sqrt{3} + 192\sqrt{3}$

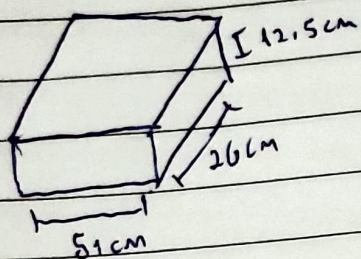At = $24\sqrt{3} + 192\sqrt{3}$

At = $216\sqrt{3} \, cm^2$      Alternativa D

→ Paralelepipedos e cubos

① 

I 12,5cm

26cm

51cm

espessura = 0,3 cm

comprimento → 51 - (2.0,5) = 51 - 1 = 50

largura → 26 - (2.0,5) = 25

Altura → 12,5 - 0,5 = 12

50 × 25 × 12 cm

$V = 50 . 25 . 12$

$V = 15000 \ cm^3 \Rightarrow 0,015 \ m^2$ Alternativa A

② $At = 72m^2$
$D = ?$

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

$D = \sqrt{3.a^2}$
$D = \sqrt{3(2\sqrt{3})^2}$
$D = \sqrt{3.12}$
$D = \sqrt{36} = 6m$

Alternativa B

③ $A = 5cm \Rightarrow \dfrac{50}{100} = 0,5m$
$V = ?$

$V = a^3$
$V = 0,5^3$
$V = 0,125m^2$

$\left. \begin{array}{r} V = 0,125 . 1000 \\ V = 125 \ litros \end{array} \right.$

Alternativa A

④ Aresta 1m    $V = a^3$
$V = 1^3$
$V = 1m \Rightarrow 1000.1 = 1000 \ litros$
$1000 - 1 = 999 \ litros$

$\left. \begin{array}{l} 1m^3 \diagdown 1000l \\ 1m^3 - x - 999l \end{array} \right.$

$1000 - 1000x = 999$

$x = \dfrac{1}{1000} = 0,001m^3$

⑤ $l = 10cm$     $AB = \dfrac{l \cdot l}{2}$     $V = AB \cdot l$

  $h = 15cm$                 $V = 75 \cdot 15$

  $V = ?$        $AB = \dfrac{10 \cdot 15}{x}$     $V = 750 cm^3$

              $AB = 75cm$

⑥ Altura $= 2 = 2y$        Prisma quadrangular reto:

  $At = 4x^2$              $AB = x \cdot y$

$Al = 2 \cdot (x \cdot 2y) + 2(y \cdot 2y))$

$Al = 4xy + 4y^2$

$At = 2AB + Al$                     $x = \dfrac{6y \pm \sqrt{100y^2}}{8}$        $AB = \dfrac{x \cdot x}{2}$

$4x^2 = 2xy + (4xy + 4y^2)$           $x = \dfrac{6y \pm 10y}{8}$          $AB = \dfrac{x^2}{2}$

$4x^2 = 6xy + 4y^2$

$4x^2 - 6xy - 4y^2 = 0$              $x' = \dfrac{16y}{8} = 2y$

$\Delta = \left[-(6)^2 - 4 \cdot 4 \cdot (-4y^2)\right]^2$           $x'' = \dfrac{-4y}{8}$         $V = \dfrac{x^2}{2} \cdot x = \dfrac{x^3}{2}$

$\Delta = 36y^2 + 64y^2$

$\Delta = 100y^2$

                              NÃO CONVÉM        Alternativa C