01.

a) $A_b = 6 \cdot \frac{4^2\sqrt{3}}{4} \Rightarrow A_b = 24\sqrt{3}\,cm^2$

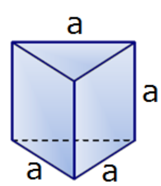
b) $A_L = 6 \cdot (4 \cdot 12) \Rightarrow A_L = 288\,cm^2$

c) $A_T = 288 + 48\sqrt{3} \Rightarrow A_T = 48\left(6+\sqrt{3}\right)cm^2$

d) $V = 24\sqrt{3} \cdot 12 \Rightarrow V = 288\sqrt{3}\,cm^3$

02.

“a medida a da aresta da base é igual à medida h da altura do prisma” ⇨ a = h



$$A_L = 10 \Rightarrow 3(a \cdot a) = 10 \Rightarrow a^2 = \frac{10}{3}$$

$$A_T = 2 \cdot \frac{a^2\sqrt{3}}{4} + 3a^2 = a^2\left(\frac{\sqrt{3}}{2} + 3\right) \Rightarrow A_T = \frac{10}{9} \cdot \left(\frac{\sqrt{3}}{2} + 3\right)cm^2$$

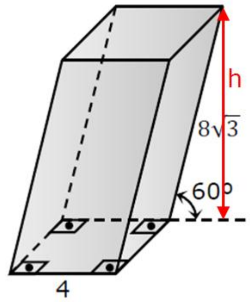
03.

$$V = \frac{4^2\sqrt{3}}{4} \cdot 10\sqrt{3} = 4\sqrt{3} \cdot 10\sqrt{3} \Rightarrow V = 120\,cm^3$$

04.

$$V = 6 \cdot \frac{a^2\sqrt{3}}{4} \cdot 2a = 81\sqrt{3} \Rightarrow a = 3\sqrt{3}\,cm$$

05.



$$\text{sen}60^\circ = \frac{h}{8\sqrt{3}} \Rightarrow \frac{\sqrt{3}}{2} = \frac{h}{8\sqrt{3}} \Rightarrow h = 12$$

$$V = 16 \cdot 12 \Rightarrow V = 192\,\text{cm}^3$$

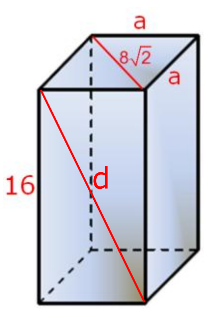
06.

a) $D = \sqrt{4^2 + 6^2 + 8^2} = \sqrt{116} \Rightarrow D = 2\sqrt{29}\,\text{cm}$

b) $A_T = 2(4 \cdot 6 + 4 \cdot 8 + 8 \cdot 6) \Rightarrow A_T = 104\,\text{cm}^2$

c) $V = 4 \cdot 6 \cdot 8 \Rightarrow V = 192\,\text{cm}^3$

07.



$$\left(8\sqrt{2}\right)^2 = a^2 + a^2 \Rightarrow 128 = 2a^2 \Rightarrow a = 8$$

a) $D = \sqrt{8^2 + 8^2 + 16^2} = \sqrt{384} \Rightarrow D = 8\sqrt{6}\,\text{cm}$

b) $d = \sqrt{8^2 + 16^2} = \sqrt{320} \Rightarrow d = 8\sqrt{5}\,\text{cm}$

c) $A_L = 4 \cdot (8 \cdot 16) = 512\,\text{cm}^2$

d) $A_T = 512 + 2 \cdot 64 \Rightarrow A_T = 640\,\text{cm}^2$

08.

$D=\sqrt{4^2+5^2+x^2}=\sqrt{105}\Rightarrow\sqrt{41+x^2}=\sqrt{105}\Rightarrow 41+x^2=105\Rightarrow x=8\,\text{cm}$

09.

a) $D=8\sqrt{3}\,\text{cm}$

b) $A_T=6\cdot 8^2\Rightarrow A_T=384\,\text{cm}^2$

c) $V=8^3=512\,\text{cm}^3$

10.

$a\sqrt{3}=5\sqrt{3}\Rightarrow a=5\,\text{cm}$

$V=5^3=125\,\text{cm}^3$

11.

$a\sqrt{2}=2\sqrt{2}\Rightarrow a=2\,\text{cm}$

$D=2\sqrt{3}\,\text{cm}$

$A_T=6\cdot 2^2\Rightarrow A_T=24\,\text{cm}^2$

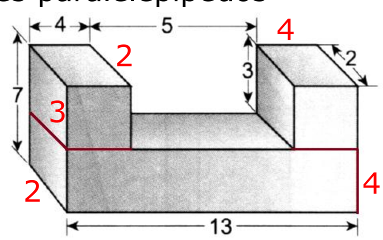
12.

$A_T=3\cdot(4\cdot 10)+2\cdot\dfrac{4^2\sqrt{3}}{4}=120+8\sqrt{3}=8\left(15+\sqrt{3}\right)\Rightarrow A_T=133{,}6$

OPÇÃO: C

13.

Podemos decompor o sólido em três paralelepípedos



Dois paralelepípedos possuem as dimensões 2, 3 e 4.

Outro possui dimensões 2, 4 e 13.

Assim, o volume total será: $V=2\cdot(2\cdot 3\cdot 4)+2\cdot 4\cdot 13\Rightarrow V=152$

14.

$V = 1,5 \cdot 2 \cdot 3 = 9\,m^3$

Resp.: 9000 litros

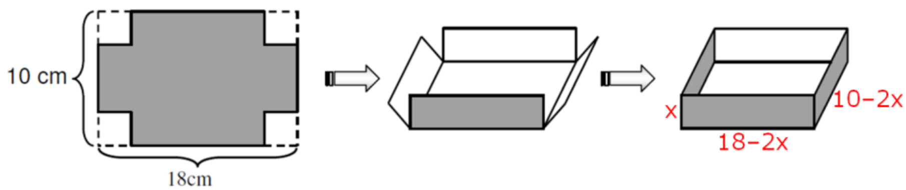
15.

$V = 30 \cdot 2 \cdot 15 = 900\,m^3$

900 000 litros

$\frac{900\,000}{4500} = 200$ pacotes

16.



$D = \sqrt{x^2 + (18-2x)^2 + (10-2x)^2} = 13 \Rightarrow x^2 + 324 - 72x + 4x^2 + 100 - 40x + 4x^2 = 13^2$

$9x^2 - 112x + 255 = 0 \Rightarrow x = \frac{112 \pm \sqrt{12544 - 9180}}{18} = \frac{112 \pm \sqrt{3364}}{18} = \frac{112 \pm 58}{18}$

$x = 9,444...$ ou $x = 3$

$x = 3\,cm$

Obs.: x não pode ser 9,444... pois, neste caso, teríamos duas dimensões com valores negativos.

$V = 3 \cdot 12 \cdot 4 = 144\,cm^3$

17.

a) $10 \cdot 10 \cdot 12 = \frac{10^2\sqrt{3}}{4} \cdot H \Rightarrow H = 16\sqrt{3}\,cm$

b) Paralelepípedo: $A_T = 2(10 \cdot 10 + 10 \cdot 12 + 12 \cdot 10) = 680\,cm^2$

Prisma triangular: $A_T = 3 \cdot (10 \cdot 16\sqrt{3}) + 2 \cdot \frac{10^2\sqrt{3}}{4} = 480\sqrt{3} + 50\sqrt{3} = 530\sqrt{3} = 901\,cm^2$

A que usa menor quantidade é a que possui o formato de uma paralelepípedo.

Diferença: 221 cm^2

18. $a^3 = 1,2 \cdot 0,9 \cdot 0,2 = 0,216 = \frac{216}{1000} \Rightarrow a = 0,6\,m$