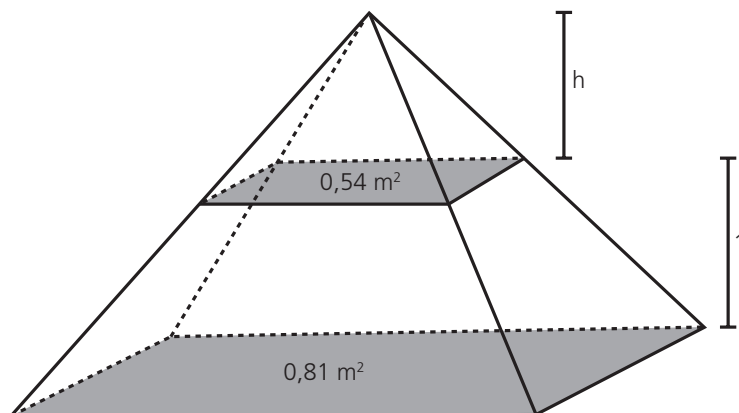


01. De acordo com o enunciado, temos:



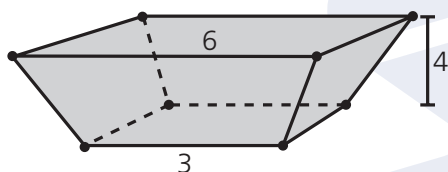
$$\text{Semelhança} \rightarrow \left(\frac{h}{h+1}\right)^2 = \frac{0,54}{0,81} \rightarrow \left(\frac{h}{h+1}\right)^2 = \frac{6}{9}$$

Então:

$$\frac{h}{h+1} = \frac{\sqrt{6}}{3} \rightarrow h = 4,45 \rightarrow H = 5,45 \text{ m}$$

Resposta: C

02. De acordo com o enunciado, temos:



- Volume (tronco) = $V_T = \frac{h_T}{3} (B + b + \sqrt{Bb})$

Então:

$$V_T = \frac{4}{3} (36 + 9 + 18) = 84 \text{ m}^3 = 84000 \text{ l}$$

Logo:

$$\text{Vazão} = \frac{84000 \text{ l}}{6000 \text{ s}} = 14 \text{ l/s}$$

Resposta: D

03. Sabe-se que:

$$V_{\text{tronco}} = \frac{h_t}{3} \cdot (B + B' + \sqrt{B \cdot B'})$$

Então:

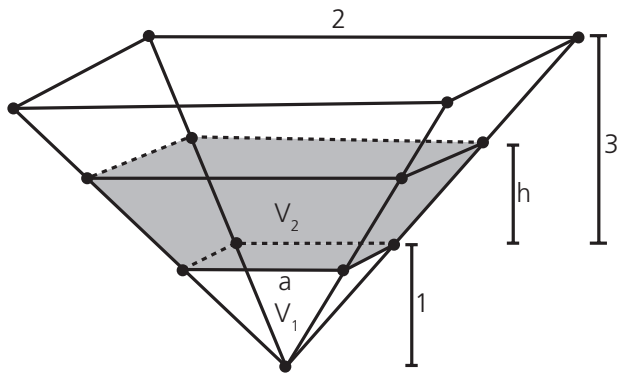
- Aresta da base maior = 9 \rightarrow área = $B = 9 \cdot 9 = 81 \text{ m}^2$
- Aresta da base maior = 7 \rightarrow área = $B' = 7 \cdot 7 = 49 \text{ m}^2$

Logo:

$$V_{\text{tronco}} = \frac{72}{3} \cdot (81 + 49 + \sqrt{81 \cdot 49}) = 4632 \text{ m}^3.$$

Resposta: B

04. De acordo com o enunciado, temos:



I. Semelhança $\rightarrow \frac{a}{2} = \frac{1}{4} \Rightarrow a = \frac{1}{2} \text{ m}$

II. $V_1 = \frac{\left(\frac{1}{2}\right) \cdot \left(\frac{1}{2}\right) \cdot 1}{3} = \frac{1}{12} \text{ m}^3$

III. $V_2 = \frac{13}{6} \text{ m}^3 = \frac{26}{12} \text{ m}^3$

Então: $\frac{V_1}{V_1 + V_2} = \left(\frac{1}{h+1}\right)^3 \Rightarrow \frac{1}{27} = \left(\frac{1}{h+1}\right)^3 \Rightarrow \frac{1}{3} = \frac{1}{h+1}$

Logo: $h = 2 \text{ m}$

Resposta: D

05. Sabe-se que:

- Altura do tetraedro regular de aresta $\ell \rightarrow h = \frac{\ell\sqrt{6}}{3}$.

- Área da base do tetraedro regular de aresta $\ell \rightarrow S = \frac{\ell^2\sqrt{3}}{4}$.

- Volume do tetraedro regular de aresta $\ell \rightarrow V = \frac{\left(\frac{\ell^2\sqrt{3}}{4}\right) \cdot \left(\frac{\ell\sqrt{6}}{3}\right)}{3} = \frac{\ell^3\sqrt{2}}{12}$

Logo:

$$V_{\text{tetraedro}} = \frac{6^3\sqrt{2}}{12} = 18\sqrt{2} \text{ cm}^3.$$

Resposta: B