

Problema 6.3

a)	Scrierea mărimilor în SI: $m = 0,8125 \text{ kg}$ $\rho_1 = 2,5 \cdot 10^3 \frac{\text{kg}}{\text{m}^3}$ $\rho_2 = 10,5 \cdot 10^3 \frac{\text{kg}}{\text{m}^3}$ <hr/> $m_1 - ?$, $m_2 - ?$, $m_2/m_1 - ?$, $V_1 - ?$, $V - ?$, $l - ?$, $S_f - ?$, $S_t - ?$	$\rho = \frac{m}{V} \quad (1) \quad \underline{(0.25 \text{ p.})}$ $V_1 = V_2 = \frac{V}{2} \Rightarrow V = 2V_1 \quad (2) \quad \underline{(0.25 \text{ p.})}$ $V_1 = \frac{m_1}{\rho_1}; \quad V_2 = \frac{m_2}{\rho_2} \quad (3) \quad \underline{(0.25 \text{ p.})}$ $m = m_1 + m_2 \quad (4) \quad \underline{(0.25 \text{ p.})}$ $(3) \text{ și } (4) \text{ în } (2) \Rightarrow \frac{m_1}{\rho_1} = \frac{m_2}{\rho_2} \quad \underline{(1.0 \text{ p.})} \Rightarrow$ $\frac{m_1}{\rho_1} = \frac{m - m_1}{\rho_2} \quad \underline{(1.0 \text{ p.})}$ $m_1 \rho_2 = \rho_1 m - \rho_1 m_1 \Rightarrow m_1 = \frac{\rho_1 m}{\rho_1 + \rho_2} \quad \underline{(1.5 \text{ p.})}$ $\text{Numeric } m_1 = \frac{2,5 \cdot 10^3 \frac{\text{kg}}{\text{m}^3} \cdot 0,8125 \text{ kg}}{2,5 \cdot 10^3 \frac{\text{kg}}{\text{m}^3} + 10,5 \cdot 10^3 \frac{\text{kg}}{\text{m}^3}} = 0,15625 \text{ kg} = 156,25 \text{ g} \quad \underline{(1.0 \text{ p.})}$	6.0 p.
b)	$m_2 = m - m_1;$ $m_2 = 0,8125 \text{ kg} - 0,15625 \text{ kg} = 0,65625 \text{ kg} = 656,25 \text{ g}$	0.5 p.	
c)	$\frac{m_2}{m_1} = \frac{0,65625 \text{ kg}}{0,15625 \text{ kg}} = 4,2 \quad 0,65625 \text{ kg}$	0.5 p.	
d)	$V_1 = \frac{m_1}{\rho_1} = \frac{0,15625 \text{ kg}}{2,5 \cdot 10^3 \frac{\text{kg}}{\text{m}^3}} = 62,5 \cdot 10^{-6} \text{ m}^3 = 62,5 \text{ cm}^3$	0.5 p.	
e)	$V = 2V_1 = 2 \cdot 62,5 \cdot 10^{-6} \text{ m}^3 = 125 \cdot 10^{-6} \text{ m}^3 = 125 \text{ cm}^3$	0.5 p.	
f)	$V = l^3 \Rightarrow l = \sqrt[3]{V} \Rightarrow l = \sqrt[3]{125 \cdot 10^{-6} \text{ m}^3} = 5 \cdot 10^{-2} \text{ m} = 5 \text{ cm}$	1.0 p.	
g)	$S_f = l^2 \quad S_f = (5 \cdot 10^{-2} \text{ m})^2 = 25 \cdot 10^{-4} \text{ m}^2 = 25 \text{ cm}^2$	0.5 p.	
h)	$S_t = 6S_f \quad S_t = 6 \cdot 25 \cdot 10^{-4} \text{ m}^2 = 150 \cdot 10^{-4} \text{ m}^2 = 150 \text{ cm}^2$	0.5 p.	