

Problema 6.3

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|-----------|---|--|----------------|
| | <p>Volumul total este $V = V_1 + V_2$ <u>(0.5 p.)</u></p> <p>Volumul aurului $V_1 = \frac{m_1}{\rho_1}$ (1) <u>(0.5 p.)</u></p> <p>Volumul cuprului $V_2 = \frac{m_2}{\rho_2}$ (2) <u>(0.5 p.)</u></p> <p>Densitatea aliajului $\rho = \frac{m}{V}$ <u>(0.5 p.)</u></p> <p>$\rho = \frac{m_1 + m_2}{V_1 + V_2}$ (3) <u>(0.5 p.)</u></p> <p>În (3) introducem (1) și (2)</p> <p>$\rho = \frac{m_1 + m_2}{\frac{m_1}{\rho_1} + \frac{m_2}{\rho_2}} = \frac{\rho_1 \rho_2 (m_1 + m_2)}{m_1 \rho_2 + m_2 \rho_1}$ (4) <u>(1.0 p.)</u></p> <p>$\rho \cdot m_1 \rho_2 + \rho \cdot m_2 \rho_1 = \rho_1 \cdot \rho_2 \cdot m_1 + \rho_1 \cdot \rho_2 \cdot m_2$ (5) <u>(1.0 p.)</u></p> <p>$m_2 (\rho_1 \cdot \rho - \rho_1 \cdot \rho_2) = m_1 \cdot \rho_2 (\rho_1 - \rho)$ (6) <u>(0.5 p.)</u></p> <p>$m_2 = \frac{\rho_2 (\rho_1 - \rho)}{\rho_1 (\rho - \rho_2)} m_1$ <u>(2.0 p.)</u></p> <p>$m_2 = \frac{8,9 \frac{\text{g}}{\text{cm}^3} \left(19,3 \frac{\text{g}}{\text{cm}^3} - 17,55 \frac{\text{g}}{\text{cm}^3} \right)}{19,3 \frac{\text{g}}{\text{cm}^3} \left(17,55 \frac{\text{g}}{\text{cm}^3} - 8,9 \frac{\text{g}}{\text{cm}^3} \right)} 285,5 \text{ g} = \frac{4446,6625}{166,945} \text{ g} \approx 27 \text{ g}$ <u>(1.0 p.)</u></p> | | 8.0 p. |
| b) | Volumul cuprului $V_2 = \frac{m_2}{\rho_2} = \frac{27 \text{ g}}{8,9 \text{ g/cm}^3} = 3 \text{ cm}^3$ <u>(1.0 p.)</u> | | 1.0 p. |
| c) | Volumul aurului $V_1 = \frac{m_1}{\rho_1} = \frac{289,5 \text{ g}}{19,3 \text{ g/cm}^3} = 15 \text{ cm}^3$; <u>(1.0 p.)</u> | | 1.0 p. |
| | Total max | | 10.0 p. |