

### Problema 6.2

<b>a)</b>	<p>Formula densității <math>\rho = \frac{m}{V}</math> <span style="float: right;"><b>(0.5 p.)</b></span></p> <p>Volumul piliturii de aramă <math>V_a = V - V_p = V - \frac{m}{\rho_3}</math> <span style="float: right;"><b>(2.0 p.)</b></span></p> <p><math>1 \text{ L} = 1 \text{ dm}^3</math> <span style="margin-left: 20px;"><b>(0.5 p.)</b></span> <math>1 \text{ cm}^3 = 0,001 \text{ dm}^3</math> <span style="float: right;"><b>(0.5 p.)</b></span></p> <p><math>V_a = V - \frac{m}{\rho_3} = 1 \text{ dm}^3 - \frac{200 \text{ g}}{0,8 \text{ g/cm}^3} = 1 \text{ dm}^3 - 250 \cdot 0,001 \text{ dm}^3 = 0,75 \text{ dm}^3</math> <span style="float: right;"><b>(0.5 p.)</b></span></p>	<b>4.0 p.</b>
<b>b)</b>	<p>Densitatea aliajului (aramei): <math>\rho_a = \frac{m_1 + m_2}{V_1 + V_2}</math> (1) <span style="float: right;"><b>(0.5 p.)</b></span></p> <p><math>m_1 = \rho_1 \cdot V_1</math> <span style="margin-left: 20px;"><b>(0.5 p.)</b></span> <math>m_2 = \rho_2 \cdot V_2</math> <span style="float: right;"><b>(0.5 p.)</b></span> (2)</p> <p><math>\frac{V_1}{V_2} = n</math> (3) <span style="margin-left: 20px;"><b>(0.5 p.)</b></span></p> <p>(2) și (3) în (1) <math>\Rightarrow \rho_a = \frac{\rho_1 \cdot nV_2 + \rho_2 V_2}{nV_2 + V_2} = \frac{n\rho_1 + \rho_2}{n + 1}</math> <span style="float: right;"><b>(2.0 p.)</b></span></p> <p><math>\rho_a = \frac{3 \cdot 8900 \frac{\text{kg}}{\text{m}^3} + 6900 \frac{\text{kg}}{\text{m}^3}}{4} = 8400 \frac{\text{kg}}{\text{m}^3}</math> <span style="float: right;"><b>(0.5 p.)</b></span></p>	<b>4.5 p.</b>
<b>c)</b>	<p><math>\frac{m_a}{m} = \frac{\rho_a V_a}{m}</math> <span style="float: right;"><b>(0.5 p.)</b></span></p> <p><math>1 \text{ dm}^3 = 0,001 \text{ m}^3</math> <span style="margin-left: 20px;"><b>(0.5 p.)</b></span></p> <p><math>\frac{m_a}{m} = \frac{8400 \frac{\text{kg}}{\text{m}^3} \cdot 0,75 \cdot 0,001 \text{ m}^3}{0,2 \text{ kg}} = 31,5</math> <span style="float: right;"><b>(0.5 p.)</b></span></p>	<b>1.5 p.</b>
<b>Total max</b>		<b>10.0 p.</b>