

real life math problem

I have a friend who makes Mokume Gane metal art which involves folding copper and silver together. He has a bracelet and wants to know how much silver is inside it. He can measure the mass by weighing it (105 g). He can measure the volume via displacement (10.9 cm³). The density of silver is 9.0 g/cm³ and the density of copper is 10.5 g/cm³. What is the mass of the silver?



$$\rho = \frac{m}{V}$$

$$\text{density} = \frac{\text{mass}}{\text{Volume}}$$

assume masses add $m_s + m_c = m_B$
 assume volume's add = $V_s + V_c = V_{\text{bracelet}}$

$$\rho_s = 9 \text{ g/cm}^3 \quad \rho_c = 10.5 \text{ g/cm}^3$$