

Дано:

$$S = 4 \text{ м}^2$$

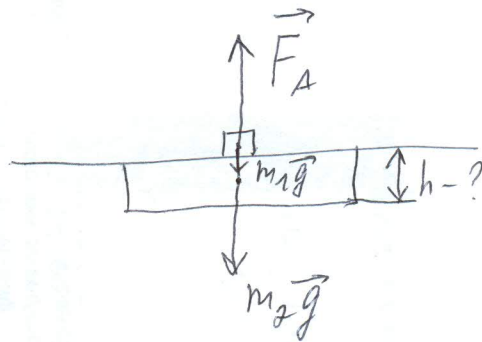
$$m_1 = 60 \text{ кг}$$

$$\rho_B = 1000 \frac{\text{кг}}{\text{м}^3}$$

$$\rho_A = 900 \frac{\text{кг}}{\text{м}^3}$$

$$g = 10 \frac{\text{Н}}{\text{кг}}$$

$$h = ?$$



$$F_A = (m_1 + m_2)g \quad (1)$$

$$F_A = \rho_B g V \quad (2)$$

$$m_2 = \rho_A V \quad (3)$$

(3) и (2) подставляем в (1):

$$\rho_B g V = (m_1 + \rho_A V)g$$

$$\rho_B V = m_1 + \rho_A V$$

$$\rho_B V - \rho_A V = m_1$$

$$V(\rho_B - \rho_A) = m_1 \quad (4)$$

$$V = Sh \quad (5) \text{ подставляем (5) в (4):}$$

$$Sh(\rho_B - \rho_A) = m_1$$

$$h = \frac{m_1}{S(\rho_B - \rho_A)}$$

$$h = \frac{60 \text{ кг}}{4 \text{ м}^2 (1000 \frac{\text{кг}}{\text{м}^3} - 900 \frac{\text{кг}}{\text{м}^3})} = 0,15 \text{ м}$$

$$\text{Ответ: } h = 15 \text{ см.}$$