

Есеп 1

Берілген:

$$m_1 = 5 \text{ кг} = 5000 \text{ г}$$

$$m_2 = 6 \text{ кг} = 6000 \text{ г}$$

$$\rho_1 = 900 \text{ кг/м}^3$$

$$\rho_2 = 2700 \text{ кг/м}^3$$

Сұрау:

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

$$V_1 - V_2$$

Шығар:

$$V_1 = \frac{5000}{900} = 6$$

$$V_2 = \frac{6000}{2700} = 3$$

$$(6 - 3) V_3 = 6 - 3 = 3 \text{ м}^3$$

$$V_1 = \frac{5000}{900} = 6$$

$$V_2 = \frac{6000}{2700} = 3$$

$$V_3 = 6 - 3 = 3 \text{ м}^3$$

Есеп 2

$$m_1 = 200 \text{ г} = 0,2 \text{ кг}$$

$$m_2 = 400 \text{ г} = 0,4 \text{ кг}$$

$$h = 60 \text{ см} = 0,6 \text{ м}$$

Сұрау:

$$\frac{m_1}{h_1} = \frac{m_2}{h_2} = m_2 \cdot h_1 \cdot m_1$$

$$h_1 = \frac{F_2 \cdot h_2}{F_1} = \frac{0,4 \cdot 10 \cdot 0,6}{0,2 \cdot 10} = 1,2$$

Шығар:

$$0,4 \cdot 0,6 = 0,2 \cdot h_1 \Rightarrow h_1 = \frac{0,4 \cdot 0,6}{0,2} = 1,2$$

Есеп 3

$$h_1 = 30 \text{ см}$$

$$h_2 = 60 \text{ см}$$

$$\rho_1 = 900 \text{ кг/м}^3$$

$$\rho_2 = 2400 \text{ кг/м}^3$$

(сұрау)

$$P_1 = \rho_1 g h_1$$

$$P_2 = \rho_2 g h_2$$

$$P_3 = \rho_3 g h_3$$

$$P_1 + P_2 = P_3$$

$$h_3 = \frac{h_1 \rho_1 + h_2 \rho_2}{\rho_3}$$

Шығар:

$$h = \frac{30 \cdot 10^{-3} \cdot 900 + 60 \cdot 10^{-3} \cdot 2400}{3600} = \frac{108 + 144}{3600} = \frac{252}{3600} = 0,07 = 70 \text{ мм}$$

Есеп 4

Берілген:

$$\frac{kx_0}{2} = \frac{kx_1}{2}$$

$$\frac{kx_0}{2} = \frac{nx_1}{2} + mg(x_0 + x_1)$$

$$x_1^2 + \frac{2mg}{k} \cdot x_1 + \frac{2mg}{k} \cdot x_0 - x_0^2 = 0$$

$$D = \frac{4m^2 g^2}{k^2} - \frac{2mg}{k} \cdot x_1 + 4x_0^2 = 4$$

$$x_1 = 0,5 \left(\frac{2mg}{k} + \frac{2mg}{k} \right) + 2x_0 = x_0 - \frac{2m}{k}$$

$$x_1 = -x_0$$

$$kx_1 = mg$$

$$n(x_0 - 2mg) = mg$$

$$k \cdot x_0 - nm g = mg$$

$$x_0 = \frac{(n+2m)g}{k}$$