

M-P-C-8-4

1.

①  $a = 1 \mu$

$\alpha = 1,57 \frac{\mu}{c}$

$l = 2\pi R$

$\pi = 3,14$

$t = ?$

$t = \frac{S}{v}$

$P = 4a, P = 4 \cdot 1 = 4 \mu$

4  $\mu$  - общая ширина

$R = 4 \mu$

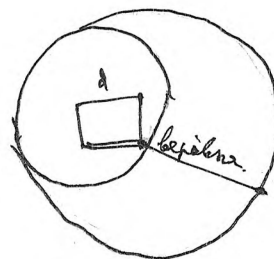
$2l = S$

$l = 2\pi R$

$l = 2(3,14 \cdot 4) = 25,12 \mu$

$S = 25,12 \cdot 2 = 50,24 \mu$

$t = \frac{50,24 \mu}{1,57 \frac{\mu}{c}} = 32 c$



Ответ: 32 c - время

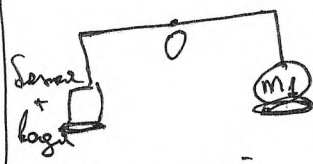
50,24  $\mu$  - ширина

M - Ф - С - Я - 4

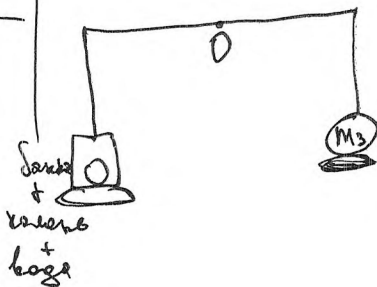
(2)  $m_1 = 250 \text{ г}$   
 $m_2 = 210 \text{ г}$   
 $m_3 = 370 \text{ г}$   
 $g_k = 4 \text{ г/л}$

мб

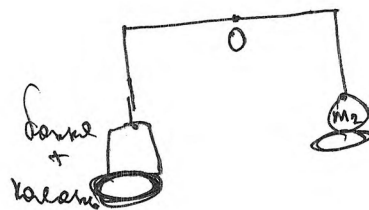
1 сбалансирован



2 сбалансирован



2 сбалансирован



$$V_{\text{соль}} = V_{\text{бл}} g_k$$

$$m_b = V_b \cdot g_b$$

$$m_1 = m_b + m_b$$

$$m_b = V_b \cdot g_b$$

$$m_b = m_1 - m_b$$

$$V_b \cdot g_b = m_1 - m_b \quad (1)$$

$$m_2 = m_b + m_k$$

$$m_k = m_2 - m_b \quad (2)$$

подстановка (1) и (2) и (4)  $\rightarrow$  (3)

$$m_3 = m_b + (m_2 - m_b) + (V_b - V_k) g_b$$

$$m_3 = m_b - m_b + m_2 + V_b g_b - V_k g_b$$

$$m_3 = m_2 + m_1 - m_b - V_k g_b$$

$$m_3 - m_2 - m_1 = -m_b - \frac{m_k}{g_k} \cdot g_b$$

$$m_k = (m_2 - m_b)$$

$$m_3 - m_2 - m_1 = -m_b - \frac{(m_2 - m_b)}{4 \cdot g_b} \cdot g_b$$

$$m_3 - m_2 - m_1 = -m_b - \frac{m_2}{4} + \frac{m_b}{4}$$

$$\frac{m_2}{4} + m_3 - m_2 - m_1 = -\frac{3}{4} m_b$$

$$\frac{210}{4} + 370 - 210 - 250 = -\frac{3}{4} m_b$$

$$-37,5 = -0,75 m_b$$

$$422,5 - 460 = -\frac{3}{4} m_b$$

$$m_b = 50 \text{ г}$$

Ответ: 50 г.

M. P. C. g. u

3.

3

$$V_k = 1000 \text{ cm}^3$$

$$a:b:c$$

$$1:2:4$$

$$m = 16 \text{ kg}$$

$$n = 2$$

$$F_T = m \cdot g \quad F_T = 16 \text{ kg} \cdot 10 \frac{\text{H}}{\text{kg}} = 16 \text{ H}$$

$$16 \text{ H} \cdot 2 = 32 \text{ H}$$

~~21~~

$$p_1 = p_2$$

$$x \cdot 2x \cdot 4x = 1000 \text{ cm}^3$$

$$\frac{1000 \text{ cm}^3}{8}$$

$$x^3 = \frac{10^3}{2^3} = \left(\frac{10}{2}\right)^3 = (5)^3$$

$$x = 5$$

$$a = 5 \text{ cm}, b = 5 \cdot 2 = 10 \text{ cm}, c = 5 \cdot 4 = 20 \text{ cm}$$

1 сторона

$$a \times c$$

$$S_1 = 5 \cdot 20 = 100 \text{ cm}^2$$

$$100 \text{ cm}^2 = 0,01 \text{ m}^2$$

$$p = \frac{F_T}{S}$$

$$p = \frac{32 \text{ H}}{0,01 \text{ m}^2} = 3200 \text{ Па}$$

$$p_{\text{б. л. о. г. e}} = p_2 \cdot S_2$$

$$p_{\text{б. л. о. г. e}} = 3200 \text{ Па} \cdot 0,005 \text{ m}^2 = 16 \text{ H}$$

$$p_{\text{б. л. о. г. e}} = p \cdot F_A$$

$$F_A = p - p_{\text{б. л. о. г. e}}$$

$$F_A = 32 \text{ H} - 16 \text{ H} = 16 \text{ H}$$

$$F_A = \rho \cdot g \cdot V$$

$$\rho = \frac{F_A}{g \cdot V}$$

$$\rho = \frac{16 \text{ H}}{10 \cdot 0,002 \text{ m}^3} = 800 \frac{\text{kg}}{\text{m}^3}$$

2 сторона

$$a \times b$$

$$S_2 = 5 \cdot 10 = 50 \text{ cm}^2$$

$$50 \text{ cm}^2 = 0,005 \text{ m}^2$$

$$V = V_1 \cdot 2$$

$$V = 1000 \text{ cm}^3 \cdot 2 = 2000 \text{ cm}^3 = 0,002 \text{ m}^3$$

Ответ: масса:

$$a = 5 \text{ cm}, b = 10 \text{ cm}, c = 20 \text{ cm}$$

$$\rho_{\text{жидкости}}: 800 \text{ Па}$$

$$\rho_{\text{ж}} = 800 \frac{\text{kg}}{\text{m}^3}$$

M-P-C-8-4

(4)

$$t_0 = 21,6^\circ\text{C}$$

$$t_1 = 30^\circ\text{C}$$

$$a_1 = a$$

$$V_1 = a_1^3$$

$$t_2 = 60^\circ\text{C}$$

$$a_2$$

$$C_{\text{смеси}} = C$$

$$V_2 = a_2^3$$

$$C_{\text{смеси}}$$

$$\frac{a_2}{a_1} = ?$$

горячая вода

$$Q_1 = C \cdot m_1 \cdot (t_k - t_1)$$

$$m_1 = V_1 \cdot \rho$$

$$Q_1 = C \cdot V_1 \cdot \rho \cdot (t_k - t_1)$$

горячая вода

$$Q_2 = C_b \cdot m_b \cdot (t_1 - t_0)$$

$$Q_1 = Q_2$$

$$C \cdot V_1 \cdot \rho \cdot (t_k - t_1) = C_b \cdot m_b \cdot (t_1 - t_0) \quad (1)$$

$$C \cdot V_2 \cdot \rho \cdot (t_k - t_2) = C_b \cdot m_b \cdot (t_2 - t_0) \quad (2)$$

горячая вода

$$Q_3 = C \cdot m_2 \cdot (t_k - t_2)$$

$$m_2 = V_2 \cdot \rho$$

$$Q_4 = C_b \cdot m_b \cdot (t_2 - t_0)$$

$$Q_3 = Q_4$$

Проблема 2 и 1

$$C \cdot V_2 \cdot \rho \cdot (t_k - t_2) = C_b \cdot m_b \cdot (t_2 - t_0)$$

$$C \cdot V_1 \cdot \rho \cdot (t_k - t_1) = C_b \cdot m_b \cdot (t_1 - t_0)$$

$$a_2^3 (t_k - t_2) = (t_2 - t_0)$$

$$a_1^3 (t_k - t_1) = (t_1 - t_0)$$

$$\frac{a_2^3}{a_1^3} = \frac{(t_2 - t_0)(t_k - t_1)}{(t_1 - t_0)(t_k - t_2)}$$

$$\left(\frac{a_2}{a_1}\right)^3 = \frac{(60 - 21,6)^\circ\text{C} \cdot (100 - 30)^\circ\text{C}}{(30 - 21,6)^\circ\text{C} \cdot (10 - 60)^\circ\text{C}} = \frac{2688}{336} = 8$$

$$\frac{a_2}{a_1} = \sqrt[3]{8} = \sqrt[3]{2^3} = 2 - \text{ответ}$$