

Тоб - 09 - 02 - 306



$$\frac{1}{5} \mid \frac{2}{5} \mid \frac{3}{20} \mid \frac{4}{5} \mid \frac{5}{20}$$

(35)

№ 3

Дано:

$$P = 200 \text{ Вт}$$

$$m = 1 \text{ кг}$$

$$t_1^{\circ} = 60^{\circ} \text{ C}$$

$$t_2^{\circ} = 61^{\circ} \text{ C}$$

$$t_1 = 1 \text{ мин} = 60 \text{ сек}$$

$$t_2 = ?$$

$$c = 4200 \frac{\text{Дж}}{\text{кг} \cdot \text{C}}$$

Решение:

$$E = P \cdot t_1 = 200 \cdot 60 = 12000 \text{ Дж}$$

$$Q = c m \Delta t = 4200 \cdot 1 \cdot 1 = 4200 \text{ Дж}$$

$$Q_2 = E - Q_1 = 12000 - 4200 =$$

$$= 7800 \text{ Дж}$$

$$v = \frac{Q_2}{t_1} = \frac{7800}{60} = 130 \frac{\text{Дж}}{\text{C}}$$

$$t_2 = \frac{4200}{130} = \frac{Q_1}{v} = 32,3 \text{ C}$$

Ответ: 32,3 C

№ 2

Дано:

$$m_1 = 1110 \text{ кг}$$

$$m_2 = 10 \text{ kg}$$

$$\rho_1 = 0,18 \frac{\text{kg}}{\text{m}^3}$$

$$\rho_2 = 1,29 \frac{\text{kg}}{\text{m}^3}$$

$$V_{\text{air}} = ?$$

$$K = ?$$

Pemerintah:

$$F_A - F_T \geq 0$$

$$F_A = \rho_2 \cdot gV$$

$$F_T = (m_1 + m_2)g =$$

$$= (m_1 + \rho_1 \cdot V)g$$

$$\rho_2 \cdot gV \geq (m_1 + \rho_1 \cdot V)g$$

$$V \geq \frac{m_1}{1,29 - 0,18}$$

$$V \geq 1000 \text{ m}^3; V_2 = 2000 \text{ m}^3$$

$$K = \frac{\rho_2 V_2 - \rho_1 V_2 - m_1}{m_2} =$$

$$= \frac{2580 - 360 - 1110}{10} =$$

$$\approx 16 \text{ m/s}$$

Ombem: 16 m/s



Тоб-99-02-306



№ 4

Дано:

$$U = 1,5 \text{ В}$$

$$Q = 90 \text{ мА} \cdot \mu\text{с}$$

$$R = 100 \text{ Ом}$$

$$n = 1,5 \text{ Ом}$$

$$t = ?$$

Решение:  $Q = I t$ ;

$$t = \frac{Q}{I}$$

$$I = \frac{U}{R} = \frac{U_1 + U_2 + U_3 + U_4}{n + R_1 + R_2 + R_3 + R_4} + \frac{1}{R_4}$$

$$= \frac{6}{25,15} = 0,24 \text{ А} = 240 \text{ мА}$$

$$t = \frac{90}{240} = 0,375 \mu\text{с} = 1350 \text{ нс}$$

Ответ:  $t = 1350 \text{ нс}$

u1

Dikano:

$$g = 10$$

t - waktu

?

Pencarian:

$$h_1 = g \frac{t^2}{2} \quad +$$

$$h_2 = g \frac{(t - \Delta t)^2}{2} \quad + 5$$

$$\Delta t = t \frac{(1 - \sqrt{2})^2}{2} = t \frac{(1 - \sqrt{2})^2}{2}$$

$$h_3 = g \frac{(t - \sqrt{2} \Delta t)^2}{2}$$

$$h_3 = g \frac{t^2}{2} \left| \frac{1 - \sqrt{2}}{2} \right|^2 = h_1 \frac{(1 - \sqrt{2})^2}{2}$$

$$= 0,09 h_1$$

Jawab:  $0,09 h_1 = h_3$

u5

Dikano:  $\Delta t_2 = 4^\circ C$

$$\Delta t_1 = 6^\circ C$$

$$K_1 = 1$$

$$K_2 = 3$$

Pencarian:

$$\begin{cases} \Delta t_1 (C_0 m_B + C_1 m_A) = Q_m \\ \Delta t_2 (C_0 m_B + K_2 C_1 m_A) = Q_m \end{cases} \Rightarrow C_0 m_B \Delta t = Q_m$$



$$\Delta t = ?$$

$$\begin{cases} \Delta t_1 (c_1 v_1 - c_2 v_2) = c_1 v_1 \\ \cdot m_1 \Delta t \\ \Delta t_2 (c_2 v_2 + k_2 (a m_2)) = \\ = c_2 v_2 \Delta t \end{cases}$$

$$c_1 m_1 \Delta t_1 = c_1 m_1 \Delta t - c_1 m_1 \Delta t_1$$

$$k_2 c_2 m_2 \Delta t_2 = c_1 m_1 \Delta t - c_2 m_2 \Delta t_2$$

$$\frac{\Delta t_1}{k_2 \Delta t_2} = \frac{\Delta t - \Delta t_1}{\Delta t - \Delta t_2}$$

$$\Delta t_1 (\Delta t - \Delta t_2) = k_2 \Delta t_2 (\Delta t - \Delta t_1)$$

$$\Delta t_1 \Delta t + \Delta t_1 \Delta t_2 =$$

$$= k_2 \Delta t_2 \Delta t - k_2 \Delta t_2 \Delta t_1$$

$$k_2 \Delta t_2 \Delta t_1 - \Delta t_1 \Delta t_2 = k_2 \Delta t_2 \cdot$$

$$\Delta t - \Delta t_1 \Delta t$$

Шахматова О.В.  $k_2 \Delta t_2 \Delta t_1 \Delta t_2 (k_2 - 1) =$

Ермакова О.В.  $\Delta t (k_2 \Delta t_2 - \Delta t_1)$

Буряков И.И.  $\Delta t = \frac{\Delta t_1 \Delta t_2 (k_2 - 1)}{k_2 \Delta t_2 - \Delta t_1}$

Буряков С.П.  $\Delta t =$

$$\Delta t = \frac{6 \cdot 4 (3 - 1)}{3 \cdot 4 - 6} = \frac{48}{6} =$$

$$= 8^\circ \text{C} \quad \text{Ответ: } \Delta t = 8^\circ \text{C}$$