

9-00933

СТР 1 / 3

N 3

Дано:

$$v_1 = 5 \frac{\text{км}}{\text{ч}}$$

$$v_2 = 15 \frac{\text{км}}{\text{ч}}$$

$$N = 100 \text{ циклов}$$

$$l = 10 \text{ м}$$

$$S_2 = 2Nl$$

$$S_1 = ?$$

Решение:

$$t_1 = t_2$$

$$S_1 = v_1 t_1$$

$$S_2 = v_2 t_1$$

$$2Nl = v_2 t_1$$

$$2 \cdot 100 \cdot 10 = 15 t_1$$

$$2000 \text{ м} = 15 t_1$$

$$2 \text{ км} = 15 t_1$$

$$t_1 = \frac{2}{15} \approx 0,13 \text{ ч}$$

$$S_1 = v_1 t_1 = 5 \cdot 0,13$$

$$S_1 = 0,65 \text{ км}$$

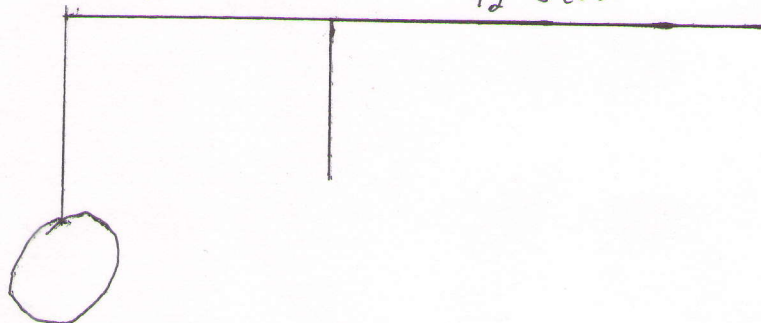
$$\text{Ответ: } 0,65 \text{ км}$$

N 1

Решение:

$$l_1 = 2 \text{ см}$$

$$l_2 = 3 \text{ см}$$



$$F_2 = F_A - (F_m + F_1)$$

$$F_A = \rho g V \cdot \frac{1}{2}$$

$$F_A = 1 \cdot 10 \cdot 0,5 \cdot \frac{1}{2} = 2,5 \text{ Н}$$

$$F_2 = m_2 g$$

$$m_2 = \frac{1}{3} M = 2,42 = 0,0024 \text{ кг}$$

$$F_2 = 0,0024 \cdot 10 = 0,024 \text{ Н}$$

Дано:

$$V = 0,5 \text{ см}^3$$

$$M = 4,52$$

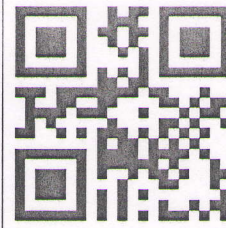
$$L = 5 \text{ см}$$

$$l_1 = 2 \text{ см}$$

$$\rho_b = 1 \frac{\text{г}}{\text{см}^3}$$

$$m = ?$$

$$g = 10 \frac{\text{Н}}{\text{кг}}$$



9-00933

СТР 2 / 3

$$F_1 = m_1 g$$

$$m_1 = \frac{M}{5} = 9 = 1,8 \text{ т}$$

$$F_1 = 1,8 \text{ Н}$$

$$F_2 = F_A - F_m - F_1$$

$$0,024 = 2,5 - 1,8 - F_m$$

$$0,024 = 0,4 - F_m$$

$$F_m = 0,643$$

$$F_m = mg$$

$$m = \frac{F_m}{g} = 0,0643 \text{ кг}$$

$$m = 64,3 \text{ г}$$

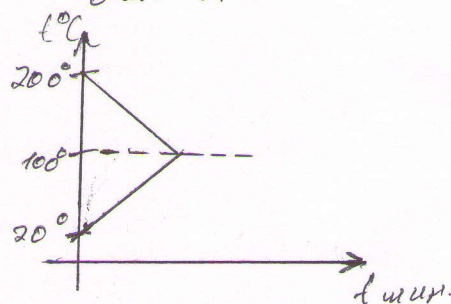
Ответ: 64,3 г.

N2.

Решение:

$$c_m = \frac{1}{5} c_b = \frac{1}{5} \cdot 4200 = 840 \frac{\text{Дж}}{\text{кг} \cdot ^\circ\text{C}}$$

$$\rho_m = 2,5 \rho_b = 2,5 \cdot 1000 = 2500 \frac{\text{кг}}{\text{м}^3}$$



$$Q_1 = Q_2$$

$$Q_1 = m_b c_b (\Theta - t_1^0)$$

$$Q_2 = m_m c_m (t_2^0 - \Theta)$$

$$m_b = \rho_b V_b$$

$$V_b = 0,009 \text{ м}^3$$

$$m_b = 1000 \cdot 0,009 = 9 \text{ кг}$$

$$m_m = V_m \rho_m$$

$$V_2 = V_1 + V_m$$

$$m_b c_b (\Theta - t_1^0) = m_m c_m (t_2^0 - \Theta)$$

Дано:

$$V_1 = 9 \text{ л} = 0,009 \text{ м}^3$$

$$t_1^0 = 20^\circ\text{C}$$

$$t_2^0 = 200^\circ\text{C}$$

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

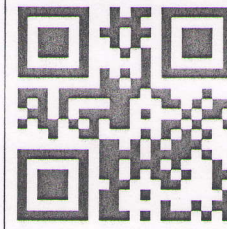
$$c_b = 4200 \frac{\text{Дж}}{\text{кг} \cdot ^\circ\text{C}}$$

$V_2 = ?$

$$c_m = \frac{1}{5} c_b$$

$$\rho_m = 2,5 \rho_b$$

$$\Theta = 100^\circ\text{C}$$



9-00933  
СТР 3 / 3

$$3 \cdot 4200 \cdot 80 = m_{\text{ш}} \cdot 840 \cdot 100$$

$$3024000 = 84000 m_{\text{ш}}$$

$$m_{\text{ш}} = \frac{3024000}{84000} = 36 \text{ кг}$$

$$V_{\text{ш}} = \frac{36}{2500} = 0,0144 \text{ м}^3$$

$$V_2 = V_{\text{ш}} + V_1 = 0,0144 + 0,009 = 0,023,4 \text{ м}^3$$

$$= 23,4 \text{ л}$$

Ответ: 23,4 л

N 4

Решение:

$$\frac{m_{\text{всв}} \Delta t}{t_{\text{в}}} = \frac{m_{\text{л}} \lambda}{t_{\text{л}}}$$

$$\frac{0,1 \cdot 4200 \cdot 2}{300} = \frac{0,1 \cdot \lambda}{36000}$$

$$0,1 \cdot 4200 \cdot 2 \cdot 36000 = 0,1 \cdot 300 \cdot \lambda$$

$$30240000 = 30 \lambda$$

$$\lambda = \frac{30240000}{30} = 336000 \frac{\text{Дж}}{\text{кг}}$$

Ответ: 336000  $\frac{\text{Дж}}{\text{кг}}$

Дано:

$$m_{\text{в}} = 100 \text{ г} = 0,1 \text{ кг}$$

$$t_1^{\circ} = 0^{\circ} \text{C}$$

$$t_1 = 15 \text{ мин} = 900 \text{ сек}$$

$$t_2^{\circ} = 2^{\circ} \text{C}$$

$$m_{\text{л}} = 0,1 \text{ кг}$$

$$t_2^{\circ} = 10^{\circ} \text{C} = 36000 \text{ сек}$$

$\lambda$  - ?

$$c_{\text{в}} = 4200 \frac{\text{Дж}}{\text{кг} \cdot ^{\circ} \text{C}}$$