

N1.

Дано:

$$v_1 = 10 \text{ м/с}$$

$$\angle \alpha = 45^\circ$$

$$S = L$$

$$h = 36$$

$$v_2 = ?$$

Решение:

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

$$t = \frac{v}{S} = \frac{10 \text{ м/с}}{L} \quad a = \frac{v}{t} = S = L$$

$$v_{01} = at \cdot \frac{at^2}{2} = \frac{10 \text{ м/с}}{10} \cdot \frac{100 \text{ м}^2 \text{с}^{-2}}{L^2} \cdot \frac{1}{2}$$

$$v_{01} = \frac{10}{10} \cdot \frac{100}{2} = 50 \text{ м/с}$$

$$v_{01} = 50 \text{ м/с}$$

$$v_{02} = at \cdot \frac{at^2}{2}$$

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

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

$$v_{02} = L \cdot \frac{v}{L} \cdot \frac{v^2}{2L}$$

$$v_{02} = \frac{v}{2}$$

$$v_{02} = \frac{10 \text{ м/с}}{2} = 5 \text{ м/с}$$

Ответ: $v_{02} = 5 \text{ м/с}$

№2.

Дано:

m_1

l_1

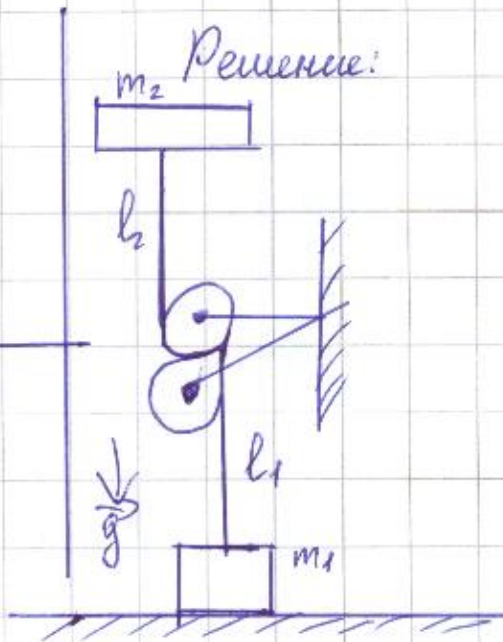
m_2

l_2 L

h - ?

t - ?

Решение:



$$F_{\text{more}} = m_1 g$$

$$F_{\text{more}} = m_2 g$$

$$m_1 g = m_2 g \Rightarrow l_1 = l_2$$

$$h = l_1 - l_2$$

$$h = L - l_2$$

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

$$S = L$$

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

$$\text{Answer: } h = L - l_2; t = \frac{v}{L}$$

N3.

Дано:

$$U_0 = 12 \text{ В}$$

$$\Delta I = 3 \text{ мА}$$

R - ?

См:

$$3 \cdot 10^{-3} \text{ А}$$

Решение:

~~$$R = \frac{U}{I}$$~~

$$R = \frac{U}{I}$$

$$R = \frac{12 \text{ В}}{3 \cdot 10^{-3} \text{ А}} = 4 \cdot 10^3 \text{ А.}$$

Ответ: $4 \cdot 10^3 \text{ А.}$

N4.

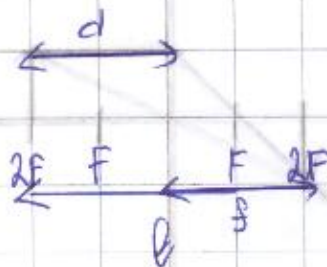
Бано:

Решение:

$$n = 1,5$$

Найти:

l. - ?



$$\frac{1}{F} = (n-1) \left(\frac{1}{R_1} + \frac{1}{R_2} \right)$$

$$\frac{1}{F} = (1,5-1) \left(\frac{1}{R_1} + \frac{1}{R_2} \right)$$

$$\frac{1}{F} = 0,5 \cdot \frac{2}{R}$$

$$\frac{1}{F} = \frac{0,5}{1} \cdot \frac{2}{R}$$

найдем R с помощью пропорции.

$$R \cdot \frac{1}{F} = \frac{1 \cdot 2}{0,5} = 4$$

$$R = \frac{1}{F} = \frac{4}{1}$$

отсюда найдем F.

$$F = \frac{1}{4}$$

$$\Gamma = \frac{s}{d}$$

$$s = \Gamma d$$

$$\frac{1}{d} + \frac{1}{\Gamma d} = \frac{1}{\frac{1}{4}}$$

$$\frac{1}{d} + \frac{\Gamma}{d} = 4$$

$$\frac{\Gamma+1}{\Gamma d} = \frac{4}{1}$$

$$\Gamma d = \frac{(\Gamma+1)1}{4} = \frac{\Gamma+1}{4} = \frac{\Gamma}{4} + \frac{1}{4}$$

$$\Gamma = \frac{1+4}{4} = 1.$$

$$s = \Gamma d = d$$

$$\frac{1}{d} + \frac{1}{d} = 4$$

$$\frac{2}{d} = 4$$

$$d = \frac{2}{4} = \frac{1}{2}$$

$$s = d = \frac{1}{2}$$

$$l = \frac{1}{2} + \frac{1}{2} = 1.$$

Ответ: $l = 1.$