

Бланк ответов

10 класс

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Дано:
с 0 до 3 с - тело
двигалось по
 $S = 11 \text{ м}$

$v_0 = ?$

Решение:

Найдем какое ^{то} тело ~~то~~ прошло с 2 до 3 с

$$S = v t$$

$$t = 3 - 2 = 1$$

$$v = 3 \text{ м/с (по графику)}$$

5б.

$$+ S_2 = 3 \text{ м}$$

Найдем ~~на~~ путь от 3 до 4 с:

$$S_3 = v_0 t_3 - \frac{a_3 t_3^2}{2}$$

$$a_3 = \frac{v - v_0}{t} = -3 \text{ м/с}^2$$

$$v = 0 \text{ (по графику)}$$

$$v_0 = 3 \text{ м/с (по графику)}$$

$$S_3 = 1,5 \text{ м} +$$

$$S_1 = S - S_2 - S_3 = 6,5 \text{ м - тело прошло с 0 до 2 с} +$$

$$S_1 = v_0 t_1 + \frac{a_1 t_1^2}{2}$$

$$v_1 = v_0 + a_1 t_1$$

$$v_0 = v_1 - a_1 t_1$$

$$S_1 = v_1 t_1 - a_1 t_1 + \frac{a_1 t_1^2}{2} \quad | \cdot 2$$

$$2S_1 - 2v_1 t_1 = -a_1 t_1 + v_1 t_1^2 = a_1(t_1^2 - t_1) \quad | : (t_1^2 - t_1)$$

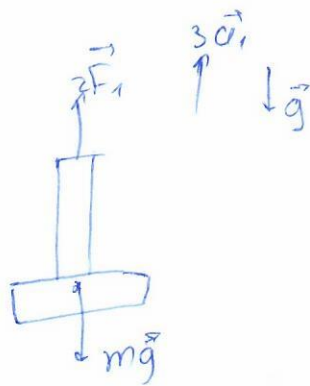
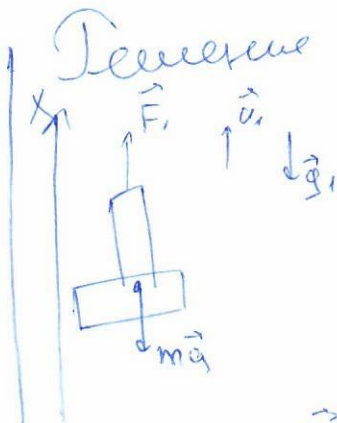
$$a_1 = \frac{2S_1 - 2v_1 t_1}{t_1^2 - t_1} = 0,5 \text{ m/s}^2 \quad \underline{v_1 = 3 \text{ m/s (no frequency)}}$$

$$v_0 = v - a_1 t_1$$

$$v_0 = 3 - 0,5 \cdot 2 = 2 \text{ m/s}$$

Jawab: $v_0 = 2 \text{ m/s}$

Dik
 npx F_1
 $a_1 = 8 \text{ m/s}^2$
 npx F_2
 $a_2 = 3a_1 =$
 $= 24 \text{ m/s}^2$



$$m \vec{a}_1 = \vec{F}_1 + m \vec{g}$$

$$3m \vec{a}_2 = 2\vec{F}_1 + m \vec{g}$$

proyeksikan ke sumbu x:

$$m a_{1x} = F_{1x} - m g_x$$

$$3m a_{2x} = 2F_{1x} - m g_x$$

$$3m a_{2x} - m a_{1x} = 2F_{1x} - m g_x - F_{1x} + m g_x$$

$$2m a_{2x} = F_{1x}$$

$$2a_{2x} = \frac{F_{1x}}{m} = 16$$

$$a_{2x} = 16 - 8 = 8 \text{ m/s}^2$$

$$m a_{1x} = F_{1x} - m g_x \quad | : m$$

$$a_{1x} = \frac{F_{1x}}{m} - g_x$$

$$a_{1x} = \frac{F_{1x}}{m} - a_{2x} \quad \text{Jawab: } a_{1x} = 8 \text{ m/s}^2$$

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2 часть

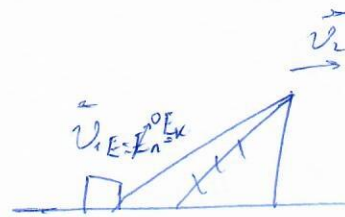
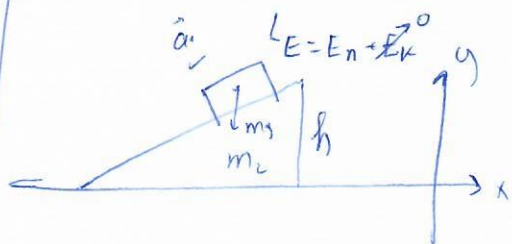
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Дано
 $m_2 = 0,9 \text{ кг}$
 $m_1 = 0,1 \text{ кг}$
 $h = 0,18 \text{ м}$

Решение:



$v_2 = ?$

$$E_n = mgh = 0,18 \text{ Дж}$$

$$E_n = \frac{mv_1^2}{2}$$

$$E_n = k E_k$$

$$hmg = \frac{mv_1^2}{2}$$

$$v_1 = \sqrt{2gh} \approx 1,9 \text{ м/с}$$

$$m_1 v_1 = m_2 v_2$$

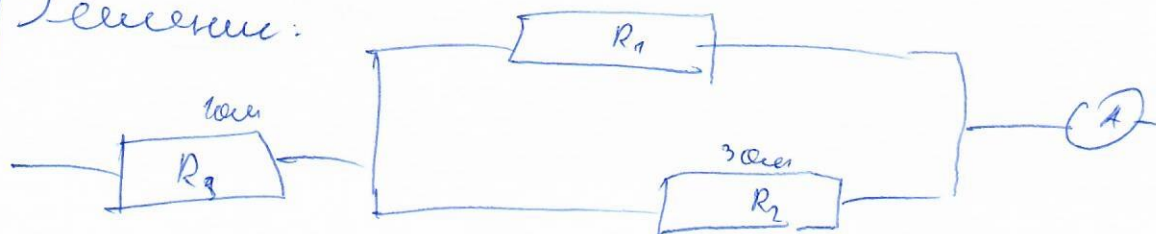
$$v_2 = \frac{m_1 v_1}{m_2} \approx 0,21 \text{ м/с}$$

Ответ: $v_2 = 0,21 \text{ м/с}$

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Дано:
 $R_2 = 3 \text{ Ом}$
 $R_1 = 1 \text{ Ом}$
 $U_1 = 2 \text{ В}$

Решение:



R_{12} ?

$$2I_1 = \frac{U}{R_0}$$

$$I_1 = 2I_2$$

+

$$R_0 = R_3 + R_{12}$$

$$\frac{1}{R_{12}} = \frac{1}{R_1} + \frac{1}{R_2} = \frac{R_1 + R_2}{R_1 R_2}$$

$$R_{12} = \frac{R_1 R_2}{R_1 + R_2}$$

$$R_0 = R_3 + \frac{R_1 R_2}{R_1 + R_2}$$

$$2I_2 = \frac{U}{R_3 + \frac{R_1 R_2}{R_1 + R_2}}$$

$$I_2 = \frac{U}{2R_3 + \frac{2R_1 R_2}{R_1 + R_2}}$$

$$I_2 = \frac{U}{R_3 + R_2}$$

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$$I_2 = \frac{U}{R_3 + R_2}$$

$$2R_3 + \frac{2R_1 R_2}{R_1 + R_2} = R_3 + R_2$$

$$2R_3 + \frac{2R_1 R_2}{R_1 + R_2} = R_3 + R_2$$

$$2 + \frac{2R_1}{4 + R_1} = 4 \quad | \cdot (4 + R_1)$$

$$2 + \frac{6R_1}{R_1 + 3} = 4 \quad | \cdot (R_1 + 3)$$

$$8 + 2R_1 + R_1 = 16 + 4R_1$$

$$2R_1 - 6R_1 + 6R_1 = 4R_1 + 12$$

$$6R_1 = 8$$

$$4R_1 = 6$$

$$R_1 = 0,15 \text{ Ohm}$$

$$R_1 = \frac{2}{3} \text{ Ohm}$$

Answer: $R_1 = 4$

Answer: $R_1 = \frac{2}{3} \text{ Ohm}$

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зачет

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Дано

m_1 при $\Delta t_1 = 10^\circ\text{C}$

m_2

m_2 при $\Delta t_3 = 15^\circ\text{C}$

$2m_2$

$t_4 = 0^\circ\text{C}$

$t_0 = ?$

решение

$$Q_{01} = m_1 c \Delta t_1$$

$$Q_{n1} = m_2 c \Delta t_2$$

$$Q_{01} = Q_{n1}$$

$$m_1 c \Delta t_1 = m_2 c \Delta t_2$$

$$Q_{02} = m_1 c \Delta t_3$$

$$Q_{n2} = 2m_2 c \Delta t_4$$

$$Q_{02} = Q_{n2}$$

$$\begin{aligned} m_1 c \Delta t_3 &= 2m_2 c \Delta t_4 \\ m_1 c \Delta t_1 &= m_2 c \Delta t_2 \end{aligned} \quad | :$$

$$\frac{m_1 c \cdot \Delta t_3}{m_1 c \cdot \Delta t_1} = \frac{2m_2 c \Delta t_4}{m_2 c \Delta t_2} = \frac{2 \Delta t_4}{\Delta t_2} = 1,5$$

$$\Delta t_4 = \Delta t_2 \cdot 0,75$$

~~$Q_{01} = Q_{n1}$~~

$$m_1 \Delta t_3 = 2m_2 \Delta t_4$$

$$m_1 \Delta t_1 = m_2 \Delta t_2$$

$$m_1 (\Delta t_3 - \Delta t_4) = 1,5 m_2 \Delta t_2 - m_2 \Delta t_2$$

$$5m_1 = 0,5 m_2 \Delta t_2$$

$$\Delta t_2 = \frac{5m_1}{0,5m_2}$$

Мирзи Кал (Кимодуратов, А.И.)

Бизат (Курман Г.В.)

Месту (Месторкалов, Д.Ю.)