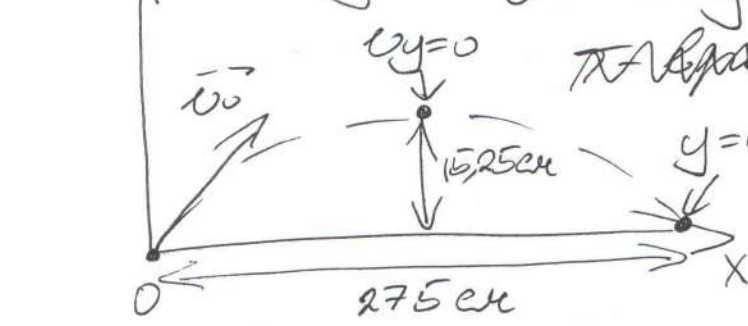


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N19

$$y = y_0 + v_{0y}t + \frac{a_y t^2}{2}$$

$$0 = v_{0y}T - \frac{gT^2}{2}$$



~~Т~~ T - время полета

$$T(v_{0y} - \frac{gT}{2}) = 0$$

$$T=0 \quad v_{0y} - \frac{gT}{2} = 0$$

$$\text{начальный момент времени} \quad v_{0y} = \frac{gT}{2} \Rightarrow$$

$$T = \frac{2v_{0y}}{g}$$

время полета

$$S = 275 \text{ см} = 2,75 \text{ м}$$

$$h = 15,25 \text{ см} = 0,1525 \text{ м}$$

$$h = \frac{v_y^2 - v_{0y}^2}{2a_y}$$

$$h = \frac{-v_{0y}^2}{-2g}$$

$$h = \frac{v_{0y}^2}{2g} \Rightarrow v_{0y} = \sqrt{2gh}$$

$$T = \frac{2\sqrt{2gh}}{g} = 2\sqrt{\frac{2gh}{g^2}} = 2\sqrt{\frac{2h}{g}} \approx 0,35 \text{ с}$$

Ответ: 0,35 с

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N2 Дано:

- $P_1 = 30 \text{ Вт}$
- $P_2 = 60 \text{ Вт}$
- $t_0 = 20^\circ\text{C}; t = 0^\circ\text{C}$
- $V = 10 \text{ см}^3 = 10 \cdot 10^{-6} \text{ м}^3$
- $\rho = 900 \frac{\text{кг}}{\text{м}^3}$
- $c = 2100 \frac{\text{Дж}}{\text{кг} \cdot ^\circ\text{C}}$
- $R = 3,4 \cdot 10^5 \frac{\text{Дж}}{\text{кг}}$
- $\Sigma = 1 \text{ час} = 3600 \text{ с}$

Ищем: $m = \rho V; \Delta t = 20 - 0 = 20^\circ\text{C} = 20 \text{ К}$

$$Q = cm\Delta t + Rm$$

$$P = P_2 - P_1 = 60 - 30 = 30 \text{ Вт}; Q = nP \cdot \Sigma$$

$$nP\Sigma = cm\Delta t + Rm$$

$$n = \frac{cm\Delta t + Rm}{P\Sigma}$$

$$n = \frac{\rho V (c\Delta t + R)}{PE} = \frac{\rho V (c\Delta t + R)}{PE}$$

$$n = \frac{900 \cdot 10^{-5} (2100 \cdot 20 + 3,4 \cdot 10^5)}{30 \cdot 3600} \approx 0,02$$

Ответ: 0,02

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N3 Dano:

$Q = -15 \text{ MK ke}$
 $M = 50 \text{ MKT}$
 $\alpha = 900$
 $v = 100 \frac{\text{cm}}{\text{e}}$
 $v_1 = v_2 = v$
 $m_1 = 20 \text{ MKT}$
 $q_1 = 10 \text{ MK ke}$

$\frac{R_1}{R_2} = ?$

$q_1 v_1 = \frac{v^2}{R_1} m_1$

$q_2 v_2 = \frac{v^2}{R_2} m_2$

$\frac{R_1}{R_2} = \frac{q_1 m_1}{q_2 m_2}$

$\frac{R_1}{R_2} = \frac{m_1 q_1}{m_2 q_2}$

$M = m_1 + m_2 \Rightarrow m_2 = M - m_1 = 50 - 20 = 30 \text{ MKT}$

$Q = q_1 + q_2 \Rightarrow q_2 = Q - q_1 = -15 - 10 = -25 \text{ MK ke}$

~~$\frac{R_1}{R_2} = \frac{20 \text{ MKT}}{30 \text{ MKT}} \cdot \frac{10 \text{ MK ke}}{25 \text{ MK ke}} = \frac{5}{3}$~~

Jawab: $\frac{5}{3} \approx 1,67$

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Penyelesaian:

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Fr usapan pada permukaan empuk-memuk

$F_{11} = q_1 v_1 = \frac{v^2}{R_1} m_1$

$F_{y1} = a_1 m_1 = \frac{v^2}{R_1} m_1$

$q_1 v_1 = \frac{v^2}{R_1} m_1$

$q_1 v_1 = \frac{v^2 m_1}{R_1} \Rightarrow R_1 = \frac{v^2 m_1}{q_1 v_1}$

$F_{12} = q_2 v_2 = \frac{v^2}{R_2} m_2$

$F_{y2} = a_2 m_2 = \frac{v^2}{R_2} m_2$

N4 Dano:

$J = 1 \text{ kg m}^2$
 $t = 20^\circ \text{C}$
 $m = 2,5 \text{ kg}$
 $S_1 = 15 \text{ cm}^2$
 $S_2 = 50 \text{ cm}^2$
 $S_3 = 25 \text{ cm}^2$

$V = ?$

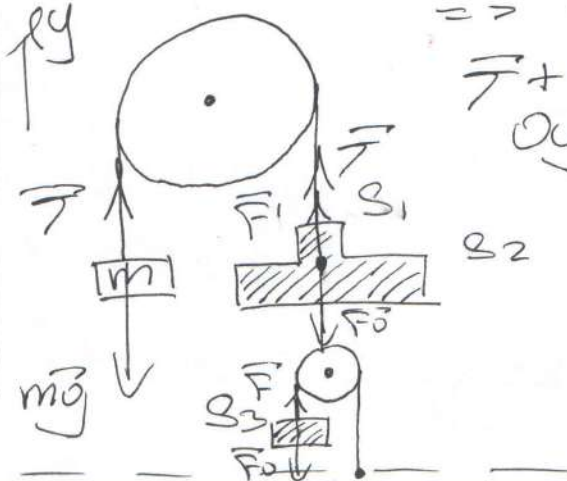
Penyelesaian:

$pV = nRT$

$\Rightarrow V = \frac{nRT}{p}$

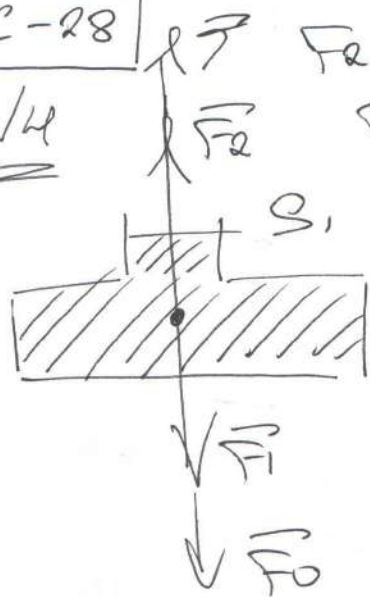
$\vec{T} + m\vec{g} = 0$

$\sum F_y = 0$
 $T - mg = 0$
 $T = mg$



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NH



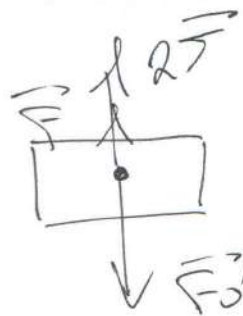
$$F_2 = p_1 S_2$$

$$F_1 = p_1 S_1$$

$$F_0 = p_0 S_1$$

$$S_2 \tau + F_2 = F_1 + F_0$$

$$mg + p_1 S_2 = p_1 S_1 + p_0 S_1$$



$$F_0 = p_0 S_3$$

$$F = p S_3$$

$$F + 2\tau = F_0$$

$$p S_3 + 2\tau = p_0 S_3 \quad | : S_3$$

$$p = p_0 - \frac{2\tau}{S_3} = p_0 - \frac{2mg}{S_3}$$

$$p_0 = 10^5 \text{ Pa}$$

$$\tau = \epsilon \cos \beta : p_1 V_1 = p_2 V_2 ; t = 20^\circ \text{C} = 293 \text{ K}$$

$$V = \frac{JK\tau}{p_0 - \frac{2mg}{S_3}} = \frac{1 \cdot 8,31 \cdot 293}{10^5 - \frac{2 \cdot 2,5 \cdot 10}{25 \cdot 10^{-4}}} \approx 0,03 \text{ m}^3$$

Объем: 0,03 м³

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N5 Dato:

$$U_0 = 4,5 \text{ B}$$

$$R_1 = 10 \text{ M}$$

$$R_2 = 20 \text{ M}$$

$$R_3 = 40 \text{ M}$$

$$R_4 = 20 \text{ M}$$

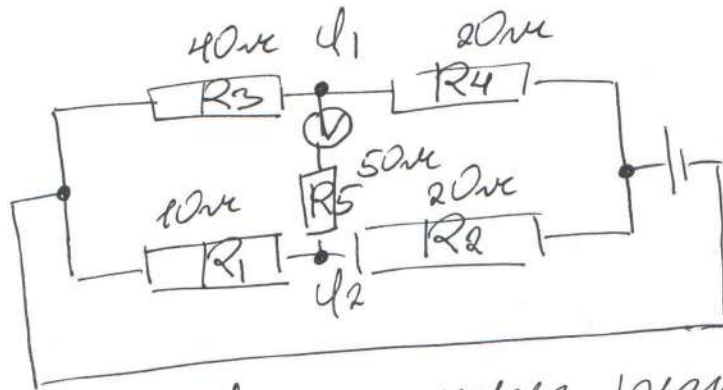
$$R_5 = 50 \text{ M}$$

$U = ?$

Answer: 0 B

Пример:

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$U_1 = U_2 \Rightarrow$ через резистор
составляется R5
так же узел $\Rightarrow U = U_{R5} = 0 \text{ B}$