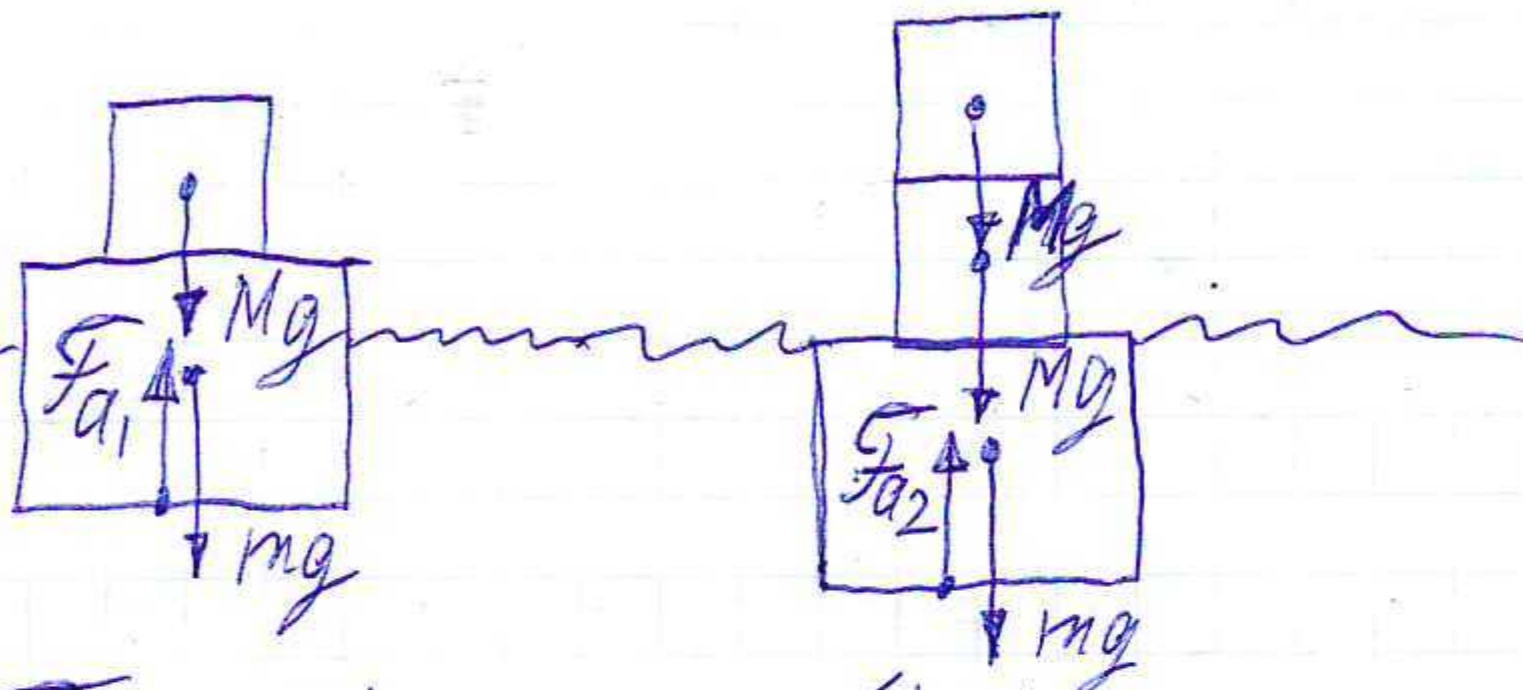


Determine:



$$F_{a1} = V_1 \rho_X g = \frac{4}{5} V \rho_X g$$

$$F_{a2} = V_2 \rho_X g = V \rho_X g$$

$$0 = F_{a1} - mg - Mg$$

$$0 = F_{a2} - mg - 2Mg$$

$$mg = F_{a1} - Mg$$

$$0 = F_{a2} - F_{a1} + Mg - 2Mg$$

$$M = \frac{F_{a2} - F_{a1}}{g} = \frac{V \rho_X g - \frac{4}{5} V \rho_X g}{g} =$$

$$= (V - \frac{4}{5} V) \rho_X = \frac{1}{5} V \rho_X$$

$$\text{Answer: } \frac{1}{5} V \rho_X$$

N1

Dano:

M

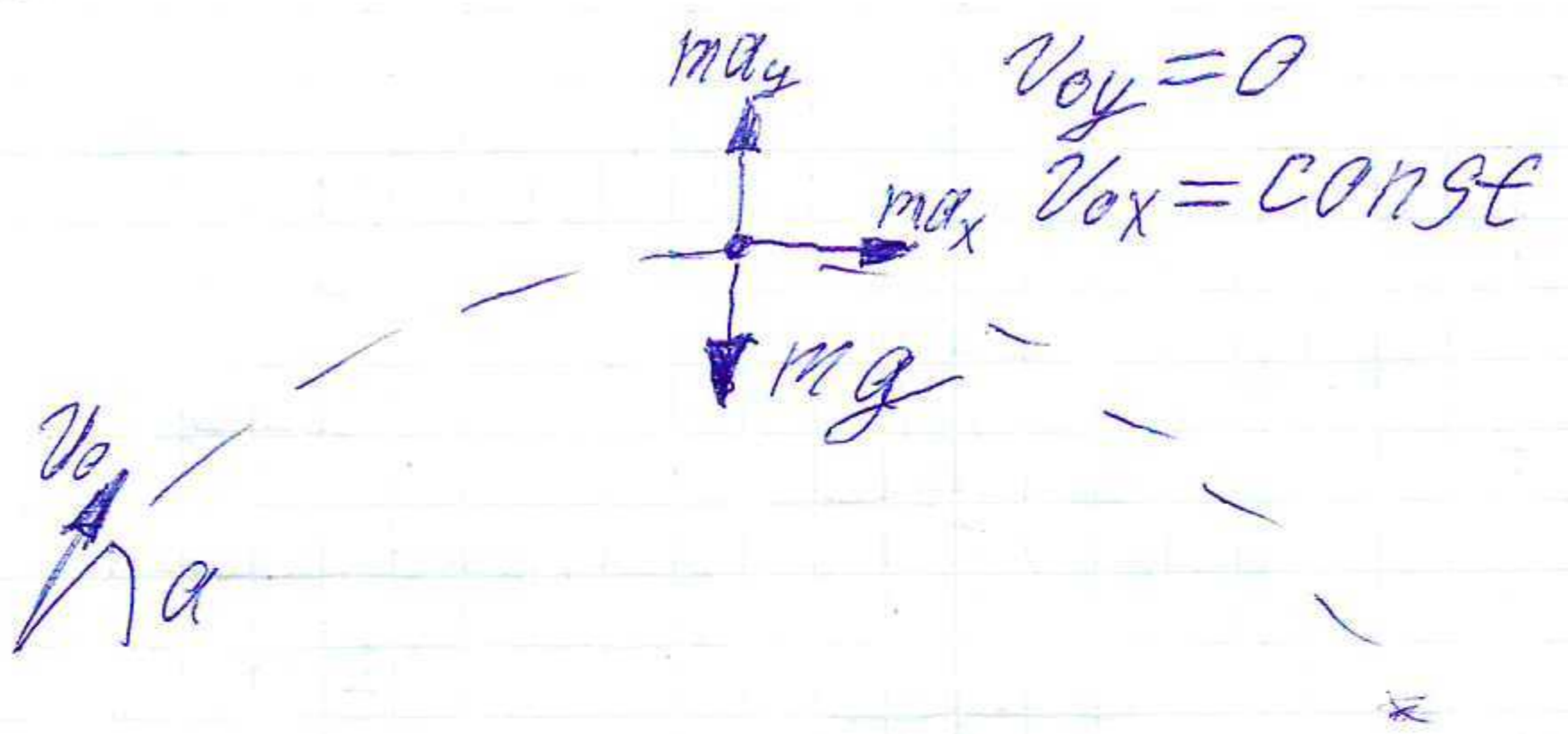
$$V_1 = \frac{4}{5} V$$

$$V_2 = V$$

 ρ_X

M-?

N2



T. K. $v_{ox} = \text{CONST}$, $m a_x = 0$

$$m a_y - m g = 0$$

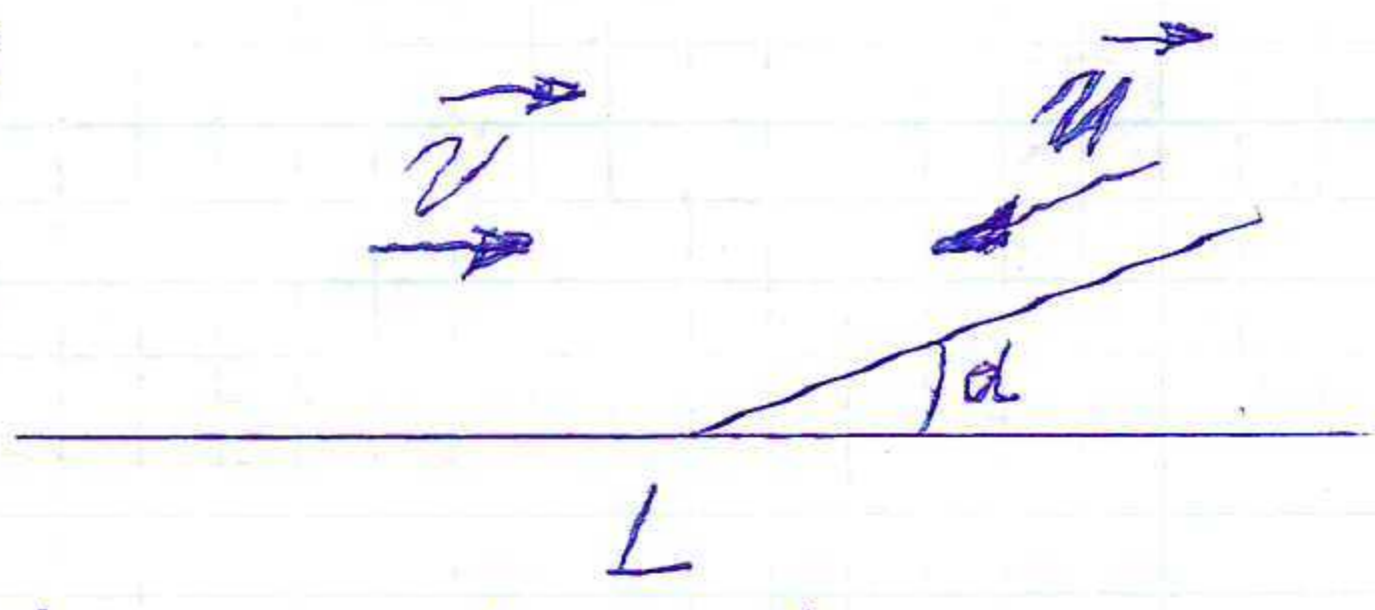
$$m a_y = m g$$

$$a_y = g$$

$$a_y = \sin \alpha \cdot a$$

$$a = \frac{g}{\sin \alpha}$$

N3

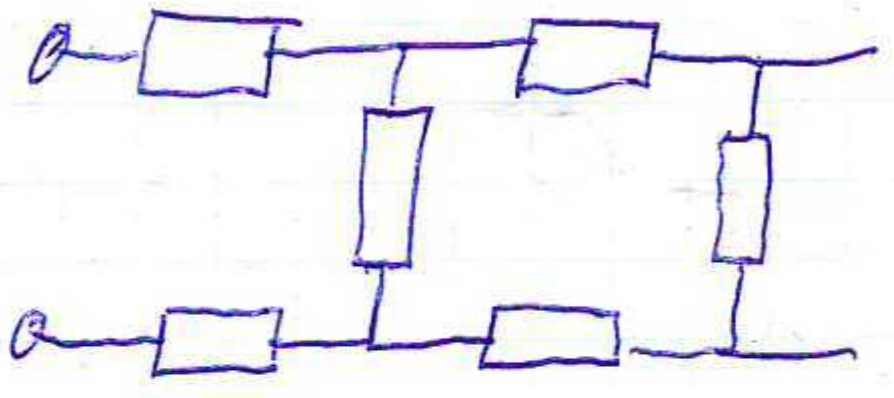


$$\vec{v}_{rel} = \vec{v} - \vec{v}'$$

$$v_{rel} = v - u \cos \alpha$$

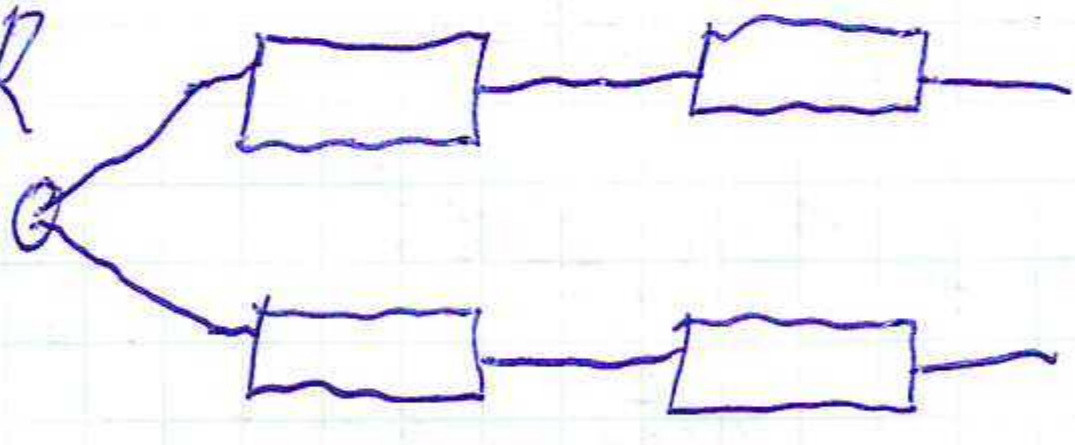
$$t = \frac{L}{v \cos \alpha} = \frac{L}{v - u \cos \alpha}$$

N4



Эквивалентная схема:

$$R_{\text{экв}1} = R + R + \dots + R$$



$$R_{\text{экв}2} = \frac{1}{2R_{\text{экв}1}}$$

$$R_{\text{экв}2} = 0,5 \text{ Ом}$$

$$\text{Ответ: } 0,5 \text{ Ом}$$

N5

Дано:	См:	Решение:
$V_1 = 500 \text{ м}$	$0,0005 \text{ м}^3$	$m = \rho V$
$V_2 = 1000 \text{ м}$	$0,001 \text{ м}^3$	$m_1 = 0,5 \text{ кг}$
$V_3 = 1,500 \text{ м}$	$0,0015 \text{ м}^3$	$m_2 = 1 \text{ кг}$
$\rho = 1000 \frac{\text{кг}}{\text{м}^3}$		$m_3 = 1,5 \text{ кг}$

$t = 1 \text{ мин}$	60 с
$\Delta t_1 = 45^\circ \text{C}$	
$\Delta t_2 = 30^\circ \text{C}$	
$C = 4200 \frac{\text{Дж}}{\text{кг} \cdot ^\circ \text{C}}$	
$\Delta t_3 = ?$	$^\circ \text{C}$

$$Q = mC\Delta t^\circ$$

$$Q = A = Pt$$

$$P_1 = \frac{m_1 C \Delta t_1}{t}$$

$$P_1 = \frac{0,5 \text{ кг} \cdot 4200 \frac{\text{Дж}}{\text{кг} \cdot ^\circ \text{C}}}{60 \text{ с}}$$

$$= 1575 \text{ Вт}$$

$$P_2 = \frac{m_2 C \Delta t_2}{t}$$

$$P_2 = \frac{1 \text{ кг} \cdot 4200 \frac{\text{Дж}}{\text{кг} \cdot ^\circ \text{C}} \cdot 30^\circ \text{C}}{60 \text{ с}} = 2100 \text{ Вт}$$

В условии сказано что $P = \text{const}$, но P_1 и P_2 отличаются ~~в~~

$$\frac{P_1}{P_2} = \frac{1575 \text{ Вт}}{2100 \text{ Вт}} = 0,75$$

Следовательно можно предположить что P_2 и P_3 различны в это же число раз.

$$P_3 = \frac{P_2}{0,75} = \frac{2100 \text{ Bm}}{0,75} = 2800 \text{ Bm}$$

10-734

$$\Delta t_3^{\circ} = \frac{P_3 t}{C M_3}$$

$$15^{\circ} = \Delta t_3^{\circ} = \frac{2800 \text{ Bm} \cdot 60 \text{ C}}{4200 \frac{\text{J}}{\text{kg} \cdot ^{\circ}\text{C}} \cdot 1,5 \text{ kg}} =$$

$$= 26,6^{\circ} \text{ C} \approx 27^{\circ} \text{ C}$$

Antwort: 27° C .