



2502380226466

Титульный лист

Направление информатика история математика
 обществознание политология русский язык
 социология физика химия
 филология

Класс 8 9 10 11

Фамилия **Н Е Л Ю Б И Н**

Имя **Л Е О Н И Д**

Отчество **А Н Д Р Е Е В И Ч**

Дата рождения **0 8 0 8 2 0 0 6**

Город участия **Е К А Т Е Р И Н Б У Р Г**

Аудитория **3 1 5**

Телефон **8 9 2 2 2 0 5 7 7 3 9**

Дата **0 1 0 3 2 0 2 2** Подпись

Пример
заполнения

А Б В Г Д Е Ж З И Й К Л М Н О П Р С Т У Ф
Х Ц Ч Ш Щ Ъ Ы Ь Э Ю Я 1 2 3 4 5 6 7 8 9 0



Проверочный лист

Заполняется участниками

- Направление**
- | | | |
|-----------------------------------------|--------------------------------------------|---------------------------------------|
| <input type="checkbox"/> информатика | <input type="checkbox"/> история | <input type="checkbox"/> математика |
| <input type="checkbox"/> обществознание | <input type="checkbox"/> политология | <input type="checkbox"/> русский язык |
| <input type="checkbox"/> социология | <input checked="" type="checkbox"/> физика | <input type="checkbox"/> химия |
| <input type="checkbox"/> филология | | |
- Класс**
- | | | | |
|----------------------------|---------------------------------------|-----------------------------|-----------------------------|
| <input type="checkbox"/> 8 | <input checked="" type="checkbox"/> 9 | <input type="checkbox"/> 10 | <input type="checkbox"/> 11 |
|----------------------------|---------------------------------------|-----------------------------|-----------------------------|

Заполняется организаторами

Количество доп. листов

Время выхода с : до :

Примечание

Протокол проверки

Заполняется жюри

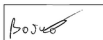
Номер задания	1	2	3	4	5	6	7	8	9	10
Балл члена жюри №1	20	00	00	03	08					
Балл члена жюри №2	20	00	00	03	08					
Номер задания	11	12	13	14	15	16	17	18	19	20
Балл члена жюри №1										
Балл члена жюри №2										

Итоговый балл

Подпись члена жюри №1



Подпись члена жюри №2



Пример заполнения

А Б В Г Д Е Ж З И Й К Л М Н О П Р С Т У Ф
Х Ц Ч Ш Щ Ъ Ы Ь Э Ю Я 1 2 3 4 5 6 7 8 9 0

The first part of the document discusses the general principles of the proposed system. It is intended to provide a comprehensive overview of the various aspects involved in the implementation of the new regulations. The following sections will detail the specific measures and procedures that will be put into effect.

The second part of the document outlines the organizational structure and the roles of the various departments. It is essential that all personnel understand their responsibilities and how they contribute to the overall success of the organization. The following table provides a summary of the key positions and their functions.

Department	Position	Responsibilities
Administration	Secretary	Manage correspondence and office operations.
	Assistant Secretary	Assist in the management of the office.
	Chief Clerk	Oversee the clerical staff and maintain records.
Finance	Accountant	Manage the organization's financial affairs.
	Assistant Accountant	Assist in the accounting and financial reporting.

The third part of the document describes the proposed changes to the existing regulations. These changes are necessary to ensure that the organization remains efficient and effective in the face of new challenges. The following sections will provide a detailed explanation of each proposed amendment.

The fourth part of the document discusses the implementation plan and the timeline for the proposed changes. It is crucial that the transition is carried out smoothly and without disruption to the organization's operations. The following schedule provides a clear overview of the key milestones and deadlines.

The fifth part of the document addresses the potential challenges and risks associated with the proposed changes. It is important to be proactive in identifying these issues and developing strategies to mitigate them. The following sections will discuss the most significant risks and how they can be managed.

The sixth part of the document provides a summary of the key findings and conclusions of the study. It is clear that the proposed changes are necessary and feasible, and that they will result in significant improvements to the organization's performance. The following sections will provide a detailed analysis of the data and the evidence supporting these conclusions.

The seventh part of the document discusses the recommendations for further research and development. It is important to continue to monitor the implementation of the proposed changes and to evaluate their impact on the organization's performance. The following sections will provide a detailed overview of the research agenda and the key areas for future study.

The eighth part of the document provides a final summary and a call to action. It is the responsibility of all members of the organization to work together to ensure the successful implementation of the proposed changes and to achieve the organization's long-term goals. The following sections will provide a detailed overview of the key messages and the actions that need to be taken.

Задача 1

Дано:

$v_a = 30 \text{ км/ч}$

$\alpha = 45^\circ$

$v_{g1} = ?$

v_a - скорость автомобиля

v_{g1} - скорость падения капли.

v_{g2} - скорость горизонтальная

скорость капли дождя относительно автомобиля.



$\vec{v}_a = -\vec{v}_{g2}$

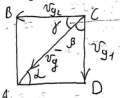
v_g - результирующая v_{g2} и v_{g1}

относительно машины.

$\beta \geq 45^\circ$ (Если этот угол $< 45^\circ$, то капли покажутся на стекле. Т.е. это противоречит условию.) $\Rightarrow \gamma$ (т.к. $v_{g2} \perp v_{g1} = 90^\circ$) $90^\circ - 45^\circ = 45^\circ \Rightarrow |\vec{v}_g| = v_{g1} \cdot \sin 30^\circ$

~~$v_{g1} = v_g \cos 30^\circ = v_{g2} \sin 30^\circ \cos 30^\circ$~~

ΔABC - Пря., $\gamma = 45^\circ \Rightarrow \angle BAC = 45^\circ \Rightarrow \Delta ABC - \text{РБ}$



$AC = |\vec{v}_g| = \sqrt{30^2 + 30^2} \neq$

$|\vec{v}_{g1}| = |\vec{v}_g| \cdot \cos \beta = \vec{v}_g \cdot \cos 45^\circ$

20б

$v_{g1} = \cos 45^\circ \cdot \sqrt{30^2 + 30^2} = 30 \text{ км/ч}$

Ответ: $v_{g1} = 30 \text{ км/ч}$

с - центр тяжести А - точка слева В - точка повеса

h - вертикаль Lx - длина динной проволоки слева от h

Задача 3

Дано:

$L_A = \frac{1}{4} L$

$\beta = 90^\circ$

$L_B = \frac{3}{4} L$

$\alpha = ?$



\vec{T} и $m\vec{g}$ расположились вдоль h в состоянии равновесия.

В состоянии равновесия m справа = m слева от h.

Т.к. проволока однородная, $\frac{2}{4} L$ слева и $\frac{2}{4}$ справа от h

$\Rightarrow Lx = \frac{2}{4} L - \frac{1}{4} L = \frac{1}{4} L \Rightarrow \Delta ABC - \text{РБ} \Rightarrow$

$\angle ABC = \angle ACB = \frac{180^\circ - 90^\circ}{2} = 45^\circ = \alpha$

Ответ: $\alpha = 45^\circ$

Задача 5

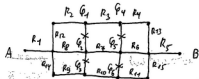
Дано:

$$L = 5 \text{ м}$$

$$d = 2 \text{ мм}$$

$$\rho_{\text{Al}} = 0,027 \frac{\text{Ом} \cdot \text{мм}^2}{\text{м}}$$

$$R_{\text{общ}} = ?$$



Разность потенциалов

$$\varphi_1 \text{ и } \varphi_2; \varphi_2 \text{ и } \varphi_3; \varphi_4 \text{ и } \varphi_5;$$

$\varphi_5 \text{ и } \varphi_6 = 0 \Rightarrow$ по этим проводникам ток не проходит \Rightarrow их можно считать из цепи.

$$R = \frac{\rho l}{S} = \rho \frac{d}{2} = 1 \text{ мм} \quad S_0 = \pi r^2$$

$$R = \frac{0,027 \frac{\text{Ом} \cdot \text{мм}^2}{\text{м}} \cdot 0,05 \text{ м}}{\pi \cdot 1 \text{ мм}^2} \approx 4,3 \cdot 10^{-4} \text{ Ом}$$

$$R_{\text{общ}} = \frac{1}{\frac{1}{R_1 + R_2 + R_3 + R_4 + R_5} + \frac{1}{R_6 + R_7 + R_8} + \frac{1}{R_9 + R_{10} + R_{11} + R_{15}}} = \frac{2}{5R} + \frac{1}{3R}$$

$$R_{\text{общ, параллельное}} = \frac{1}{\frac{1}{R_1 + R_2 + R_3 + R_4 + R_5} + \frac{1}{R_6 + R_7 + R_8} + \frac{1}{R_9 + R_{10} + R_{11} + R_{15}}}$$

$$R_{\text{общ, параллельное}} = \frac{1}{\frac{6}{15R} + \frac{5}{15R}} = \frac{15R}{11}$$

$$R_{\text{общ, параллельное}} = \frac{15R}{11}$$

$$R_{\text{общ}} = \frac{15R}{11} + R + R = 2R + \frac{15R}{11} = \frac{37R}{11} = \frac{4,3 \cdot 10^{-4} \text{ Ом} \cdot 37}{11} \approx 1,45 \cdot 10^{-3} \text{ Ом}$$

Ответ: $1,45 \cdot 10^{-3} \text{ Ом}$

Задача 4

Дано:

$$R = 0,5 \text{ мОм}$$

$$H = 60 \text{ см}$$

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

$$t_2 = 1000^\circ \text{C}$$

$$C_1 = 2110 \frac{\text{Дж}}{\text{кг} \cdot ^\circ \text{C}}$$

$$2 = 33500 \frac{\text{Дж}}{\text{кг}}$$

$$C = ?$$

$$C = \frac{Q}{\Delta t_m}$$

$m = 1 \text{ кг}$ (нога)

Δt_m - у м. т. температура

Δt_m - у м. т. снега

$$Q_1 = C_1 m \Delta t_1 + 2m = (C_1 \Delta t_1 + 2)m$$

$$C = \frac{C_1 \Delta t_1 + 2}{\Delta t_m}$$

$$\Delta t_{\text{снег}} = 0 - (-20) = 20^\circ \text{C}$$

$$\Delta t_m = 1000 - (-20) = 1020^\circ \text{C}$$

$$C = \frac{2110 \frac{\text{Дж}}{\text{кг} \cdot ^\circ \text{C}} + 33500 \frac{\text{Дж}}{\text{кг}}}{1020^\circ \text{C}} \approx 368 \frac{\text{Дж}}{\text{кг} \cdot ^\circ \text{C}}$$

Ответ: $368 \frac{\text{Дж}}{\text{кг} \cdot ^\circ \text{C}}$

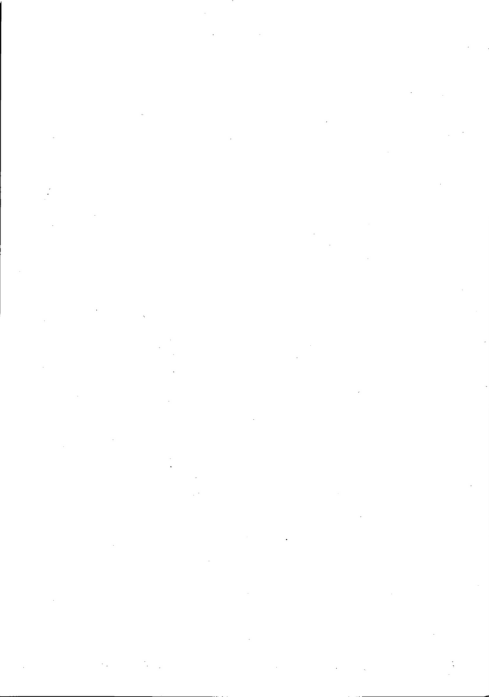
Задача 2

Дано:

$$L = 5 \text{ Ф}$$

$$d = 1,5 \text{ Ф}$$

$$E_{\text{п max}} = ?$$



Бланк ответов

