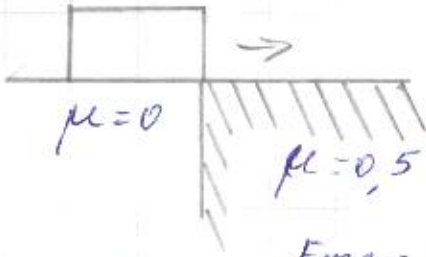


21 Дәліл
 $m = 1 \text{ кг}$
 $l = 2 \text{ м}$
 $\mu = 0,5$

$a = ?$



$$a = \frac{F}{m}$$

$$F_{\text{тр}} = \mu \cdot N$$

$$N = mg \quad N = 1 \cdot 10 = 10 \text{ Н}$$

$$F_{\text{тр}} = 0,5 \cdot 10 = 5 \text{ Н}$$

$$F_T = mg = 10 \text{ Н}$$

$$F_P = F_T - F_{\text{тр}} = 10 - 5 = 5 \text{ Н}$$

$$a = \frac{5 \text{ Н}}{2 \text{ м}} = 2,5 \text{ Д/с}$$

Омбеом: 2,5 Д/с

22 Дәліл
 $t_1 = 60^\circ \text{C}$
 $t_2 = 75,5^\circ \text{C}$
 $\frac{1}{3} V$ - 1 стакан
 $\frac{1}{4} V$ - 2 стакандар

$t = ?$

$$Q = r \cdot m$$

$$m = \rho \cdot V$$

$$\frac{1}{3} V - 60^\circ \text{C}$$

$$\frac{1}{4} V - 75,5^\circ \text{C}$$

$$m_1 = 1000 \cdot \frac{1}{3} V$$

$$m_2 = 1000 \cdot \frac{1}{4} V$$

$$t_p = 75,5^\circ \text{C} - 60^\circ \text{C} = 15,5^\circ \text{C}$$

$$\frac{\frac{1}{3} - \frac{1}{4}}{\frac{1}{3} - \frac{1}{4}} = \frac{\frac{4}{12} - \frac{3}{12}}{\frac{4}{12} - \frac{3}{12}} = \frac{1}{12}$$

$$\frac{12}{12} - \left(\frac{4}{12} + \frac{3}{12} \right) = \frac{5}{12}$$

$$\frac{1}{12} - 15,5^\circ \text{C}$$

$$\frac{5}{12} - x$$

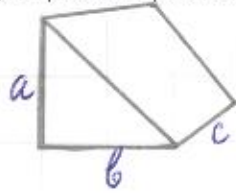
$$x = \frac{\frac{5}{12} \cdot 15,5}{\frac{1}{12}} = 77,5^\circ \text{C}$$

$$100^\circ \text{C} - 77,5^\circ \text{C} = 22,5^\circ \text{C}$$

Омбеом: 22,5°C

23 Дано

	см
$b = 10$	$0,1$
$c = 20$	$0,2$
$a = 20$	$0,2$
$\rho = 1000 \frac{\text{кг}}{\text{м}^3}$	
$P = ?$	



$$P = \rho \cdot g \cdot h$$

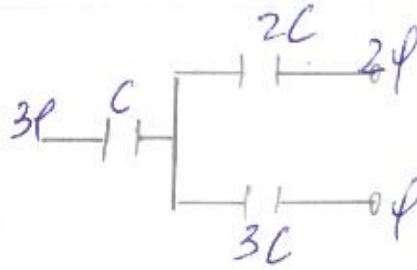
$$h = a = 0,2 \text{ м}$$

$$P = 1000 \cdot 10 \cdot 0,2 = 2 \cdot 10^3 \text{ Па}$$

Ответ: $2 \cdot 10^3 \text{ Па}$; прямой угол

24 Дано

	см
$C = 10 \text{ мкФ}$	$10 \cdot 10^{-6} \text{ Ф}$
$U = 300 \text{ В}$	
$Q = ?$	



$$C_* = 10^{-5} \text{ Ф} \quad 2C = 20 \cdot 10^{-6} \text{ Ф}$$

$$3C = 30 \cdot 10^{-6} \text{ Ф}$$

$$2C \ 3C = \frac{20 \cdot 10^{-6} \cdot 30 \cdot 10^{-6}}{20 \cdot 10^{-6} + 30 \cdot 10^{-6}} = \frac{6 \cdot 10^{-10}}{50 \cdot 10^{-6}}$$

$$= \frac{6 \cdot 10^{-4}}{50} = 12 \cdot 10^{-6}$$

$$10 \ 20 \ 3C_* = 10 \cdot 10^{-6} + 12 \cdot 10^{-6} = 22 \cdot 10^{-6}$$

~~$$Q = \frac{P}{C} = \frac{300}{C}$$~~

$$Q = C \cdot U = 22 \cdot 10^{-6} \cdot 300 = 66 \cdot 10^{-4}$$

Ответ: $66 \cdot 10^{-4}$

№ 3

Берілгені:

$$a = 20 \text{ см}$$

$$b = 10 \text{ см}$$

$$c = 20 \text{ см}$$

$$\rho = 1000 \text{ кг/м}^3$$

$$g = 9,8 \frac{\text{кг}}{\text{м} \cdot \text{с}^2}$$

Тап F_A?

Х.Б.Ж

$$0,2 \text{ м}$$

$$0,1 \text{ м}$$

$$0,2 \text{ м}$$

Шешуі:

$$V = a \cdot b \cdot c = 0,2 \text{ м} \cdot 0,1 \text{ м} \cdot 0,2 \text{ м} = 0,004 \text{ м}^3$$

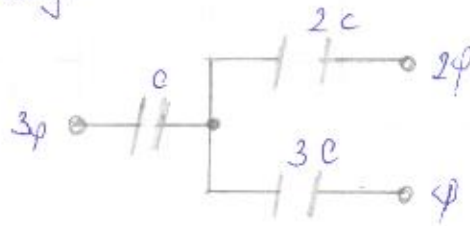
$$F_A = \rho \cdot g \cdot V = 1000 \text{ кг/м}^3 \cdot 9,8 \frac{\text{кг}}{\text{м} \cdot \text{с}^2} \cdot 0,004 \text{ м}^3 \\ = 39,2 \text{ Н}$$

$$\text{ЖК/Со: } F_A = 39,2 \text{ Н}$$

№04 Берілгені
 $C = 10 \text{ мкФ}$
 $\varphi = 300 \text{ В}$

Ж.Б. МС
 $0,04 \text{ Ф}$

Шешуі:



Т/к W-?

$$3\varphi = 3 \cdot 300 \text{ В} = 900 \text{ В}$$

$$2\varphi = 2 \cdot 300 \text{ В} = 600 \text{ В}$$

$$3c = 3 \cdot 0,04 \text{ Ф} = 0,12 \text{ Ф}$$

$$2c = 2 \cdot 0,04 \text{ Ф} = 0,08 \text{ Ф}$$

$$\varphi = 3\varphi + 2\varphi + \varphi = 900 \text{ В} + 600 \text{ В} +$$

$$+ 300 \text{ В} = 1800 \text{ В}$$

$$C = 3c + 2c + c = 0,12 \text{ Ф} + 0,08 \text{ Ф} +$$

$$+ 0,04 \text{ Ф} = 0,24 \text{ Ф}$$

$$W = \varphi \cdot C = 1800 \text{ В} \cdot 0,24 \text{ Ф} = 432 \text{ Дж}$$

$$\text{МС/500 } W = 432$$

№1

Берілгені:

Шешуі:

$$m = 1 \text{ кг}$$

$$r = 2 \text{ м}$$

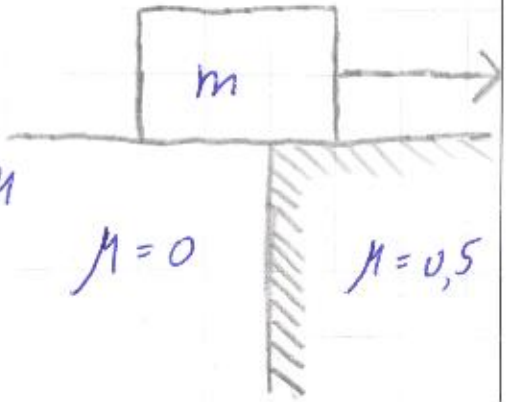
$$\mu_2 = 0,5$$

$$\mu_1 = 0$$

Т/к Азғ-?

№ 1

Негізгері	Шешуі
$m = 1 \text{ кг}$	$A = FL$
$L = 2 \text{ м}$	$F = mg$
$\mu = 0,5$	$F_{\text{тр}} = \mu N = \mu mg$
	$F_{\text{тр}} = 0,5 \cdot 1 \cdot 10 = 5 \text{ Н}$
миқ	$A = 5 \cdot 2 = 10 \text{ Дж}$
$A = ?$	



№ 2

Негізгері	Шешуі
$t_2 = -75,5^\circ \text{C}$	$60^\circ + (-75,5) = -15,5^\circ \text{C}$
$t_1 = 60^\circ \text{C}$	$\Delta t = t_2 - t_1$
$t_{\text{санама}} = ?$	$\Delta t = -75,5 - 60 = -135,5$
	$\frac{1}{4} t_2 - \frac{1}{4} t_1 = \frac{3}{4} \Delta t - \frac{3}{4} t_2$
$1,6 t_1 = 0,56$	$t_2 = \frac{3}{4} \Delta t + \frac{1}{4} t_1$
$t_1 = 0,35^\circ \text{C}$	$\frac{1}{4} (\frac{3}{4} \Delta t + \frac{1}{4} t_1) - \frac{1}{4} t_1 = \frac{3}{4} \Delta t - \frac{3}{4} (\frac{3}{4} \Delta t + \frac{1}{4} t_1)$
$1,6 t_1 = 5,6$	$\frac{3}{16} \Delta t + \frac{1}{16} t_1 - \frac{1}{4} t_1 = \frac{3}{4} \Delta t - \frac{9}{16} \Delta t + \frac{3}{16} t_1$
$t_1 = 89,6^\circ \text{C}$	$15,7 + \frac{1}{16} t_1 - \frac{1}{4} t_1 = 56,6 - 42,5 + \frac{3}{16} t_1$
$t_1 = 3,5^\circ \text{C}$	$15,7 - 56,6 + 42,5 = \frac{1}{16} t_1 - \frac{1}{4} t_1 - \frac{9}{16} t_1 + \frac{3}{16} t_1$
	$1,6 = \frac{1}{16} t_1 - \frac{1}{4} t_1 - \frac{9}{16} t_1 + \frac{3}{16} t_1$

№3

періметрі
 $a = 20 \text{ см}$
 $b = 10 \text{ см}$
 $c = 20 \text{ см}$
 $\rho_{\text{сұ}} = 1000 \frac{\text{кг}}{\text{м}^3}$

ЖБЖ
 $20 \cdot 10^{-2} \text{ м}$
 $10 \cdot 10^{-2} \text{ м}$
 $20 \cdot 10^{-2} \text{ м}$

Шешімі
 $p = F/S$ $F_H = \rho g V$ $V = a \cdot b \cdot c$

Теорема Пифагора

$$a^2 + b^2 = c^2$$

$$a^2 + b^2 = d^2$$

$$20^2 + 10^2 = d^2$$

$$400 + 100 = 500$$

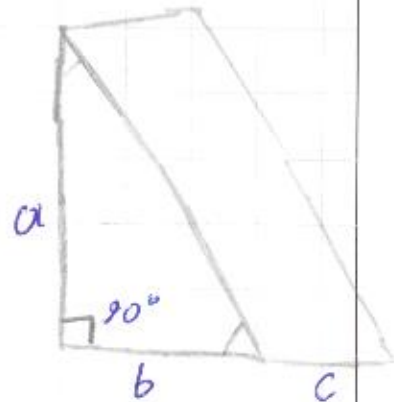
$$d = \sqrt{500} = 22,4$$

$$S = 0,2 \cdot 22,4 = 4,48 \text{ м}$$

$$V = 0,2 \cdot 0,1 \cdot 0,2 = 0,004 \text{ м}^3$$

$$F = 0,0448 \cdot 1000 = 44,8 \text{ Н}$$

$$F_H = 0,004 \cdot 1000 \cdot 10 = 40 \text{ Н}$$



$d = ?$ мик
 $p, F = ?$

№4

періметрі
 $C = 10 \text{ мкФ}$
 $\phi = 300 \text{ В}$
 мик
 $q = ?$

Шешімі:

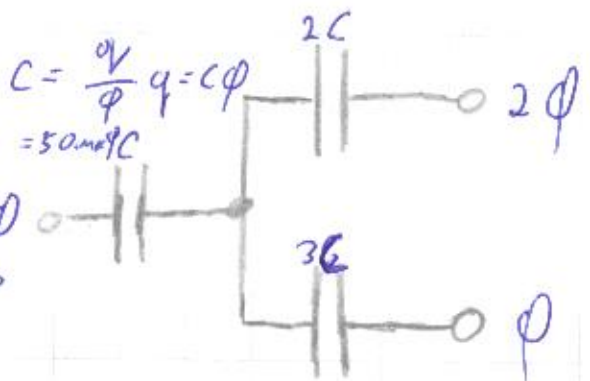
$$C = C + 2C + 3C$$

$$C = \frac{qV}{\phi} \quad q = C\phi$$

$$C = 10 + 2 \cdot 10 + 3 \cdot 10 = 50 \text{ мкФ}$$

$$3\phi + 2\phi + \phi = 1800$$

$$q = \frac{1800}{50} = 36 \text{ мкКл}$$

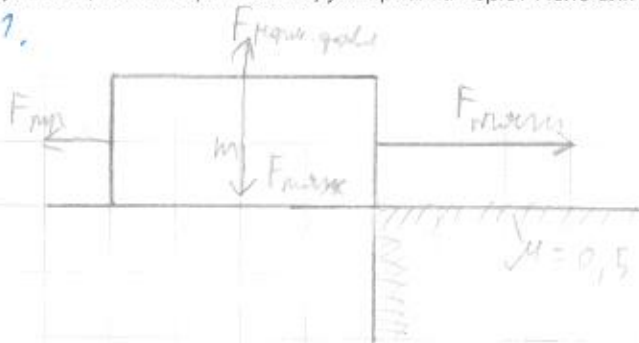


қаралымы

$$q = 1800 \cdot 50 = 90000 \text{ мкКл}$$

$$C = C_1 + C_2 + C_3 + \dots + C$$

№1.



Дано:

$m = 1 \text{ кг}$
 $L_{\text{бр.}} = 2 \text{ м}$
 $\mu = 0,5$
 $A = ?$

Решение:

$A = \frac{E}{S}, \quad S = l = 2 \text{ м.}$
 $F = F_{\text{мазм}} - (F_{\text{мазм}} + F_{\text{тр.}})$
 $F_{\text{мазм}} + F_{\text{тр.}} = F_{\text{сопр.}}$
 $F_{\text{сопр.}} = F_{\text{мазм}} + F_{\text{тр.}} \quad F_{\text{мазм}} = 1 \cdot 10 = 10 \text{ Н.}$
 $F_{\text{тр.}} = N\mu = mg\mu = 0,5 \cdot 1 \cdot 10 = 5 \text{ Н.}$
 $F_{\text{сопр.}} = mg + F_{\text{тр.}} = 10 + 5 = 15 \text{ Н.}$
 $= \min(F_{\text{мазм}}) = 15,1 \text{ Н.}$
 $A = \frac{E}{S} = \frac{\min(F_{\text{мазм}})}{S} = \frac{15,1}{2} = 7,55 \text{ Дж.}$
 Ответ: $A = 7,55 \text{ Дж.}$

№2.

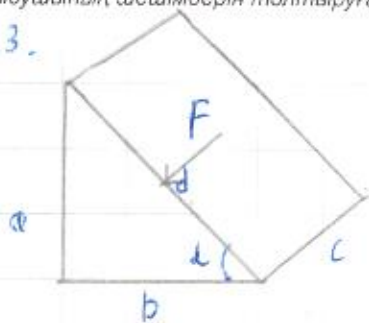
Дано:

$\Delta t_1 = 60^\circ \text{C}$
 $\Delta t_2 = 75,5^\circ \text{C}$
 $V_1 = V_2$
 $t_1 = ?; t_2 = ?$

Решение:

$Q = cm\Delta t, \quad Q_1 = Q_2$
 $\frac{2}{3}t_2 - \frac{1}{3}t_1 = \frac{3}{4}t_2 - \frac{1}{4}t_1$
 $t_1 = t_1 = \frac{1}{12} : \frac{7}{12}$
 $t_2 = 7t_1$

№3.



Дано: (и)

$$b = 10 \text{ см} = 0,1 \text{ м}$$

$$c = 20 \text{ см} = 0,2 \text{ м}$$

$$a = 20 \text{ см} = 0,2 \text{ м}$$

$F = ?$

$\alpha = ?$

Темірел:

$$F = mg \cos \alpha$$

$$\cos \alpha = \frac{b}{d}$$

$$d = \sqrt{a^2 + b^2} = \sqrt{500} \approx 22,4 \text{ см}$$

$$\cos \alpha = \frac{10}{20\sqrt{5}} = \frac{1}{2\sqrt{5}}$$

$$m = 1 \text{ кг}$$

$$F = c \cdot d = 20 \cdot 22,4 = 448 \text{ мН} = 0,448 \text{ Н}$$

№4.

Дано:

$$C = 10 \text{ мкФ}$$

$$\varphi = 300 \text{ В}$$

$q_1 = ?$

$q_2 = ?$

$q_3 = ?$

Темірел:

$$C = \frac{q}{\varphi} \quad q = C \cdot \varphi$$

$$q_1 = 900 \cdot 10 \cdot 10^{-6} = 9 \text{ мкКл}$$

$$q_2 = 600 \cdot 2(10 \cdot 10^{-6}) = 12 \cdot 10^{-6} \text{ Кл}$$

$$q_3 = 300 \cdot 3(10 \cdot 10^{-6}) = 9 \cdot 10^{-6} \text{ Кл}$$

$$\text{әулеті: } 9, 12 \cdot 10^{-6}, 9 \cdot 10^{-6} \text{ Кл}$$

N1

$$m = 1 \text{ кг}$$

$$L = 2 \text{ м}$$

$$\mu = 0,5$$

Q-?

$$Q = m L g = \frac{1 \cdot 2 \cdot 9,8}{0,5} = 39,2 \text{ Дж}$$

Answer: $Q = 39,2 \text{ Дж}$

N2

$$V_1 = \frac{1}{3} \text{ V}$$

$$V_2 = \frac{1}{4} \text{ V}$$

$$V_3 = \frac{1}{2} \text{ V}$$

$$V_{r1} = \frac{2}{3} \text{ V}$$

$$V_{r2} = \frac{3}{4} \text{ V}$$

$$V_{r3} = \frac{1}{2} \text{ V}$$

$$t_1 = 60^\circ \text{C}$$

$$t_2 = 75,5^\circ \text{C}$$

$$t_{\text{ком}} = ?$$

$$t_3 = ?$$

$$t_1 = \frac{t_{\text{ком}}}{V_1} + \frac{t_r}{V_{r1}}$$

$$t_1 = \frac{t_{\text{ком}}}{\frac{1}{3}} + \frac{t_r}{\frac{2}{3}}$$

$$t_{\text{ком}} = t_1 \cdot V - 1,5 t_r$$

$$t_2 = \frac{t_{\text{ком}}}{V_2} + \frac{t_r}{V_{r2}}$$

$$t_2 = \frac{t_{\text{ком}}}{\frac{1}{4}} + \frac{t_r}{\frac{3}{4}}$$

$$t_{\text{ком}} = \frac{t_2 \cdot V - \frac{4}{3} t_r}{4}$$

~~$$t_3 = \frac{2 t_{\text{ком}}}{V} + \frac{2 t_r}{V_{r3}}$$~~

$$\frac{t_1 V - 1,5 t_r}{3} = \frac{t_2 V}{4} - \frac{4}{3} \frac{t_r}{4}$$

$$\frac{60V - 75,5V}{3} = \frac{1,5 t_r}{3} - \frac{4}{3} \frac{t_r}{4}$$

$$-13,5V = 2 t_r$$

$$t_r = 0,75V$$

$$t_{\text{ком}} = \frac{60V - 10,125V}{3}$$

$$t_{\text{ком}} = 16,625V$$

$$t_3 = \frac{t_{\text{ком}}}{V_3} + \frac{t_{r3}}{V_{r3}}$$

$$t_3 = \frac{33,25V}{V} + \frac{13,5V}{V}$$

$$t_3 = 46,75^\circ \text{C}$$

Answer: $t_3 = 46,75^\circ \text{C}$

N3

$$b = 10 \text{ см}$$

$$c = 20 \text{ см}$$

$$a = 20 \text{ см}$$

$$\rho = 1000 \text{ кг/м}^3$$

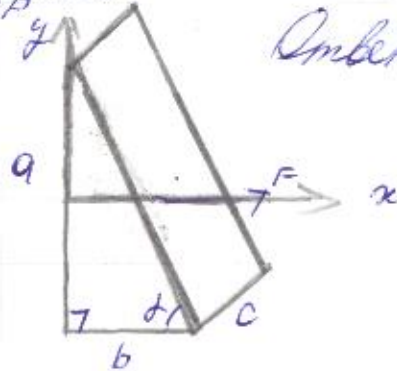
$$F = ? \quad \angle \beta = ?$$

$$m = V \cdot \rho \quad V = \frac{abc}{2} = 2000 \text{ см}^3 = 2 \cdot 10^{-3} \text{ м}^3$$

$$m = 2 \cdot 10^{-3} \cdot 1000 = 2 \text{ кг}$$

$$F = mg \cos \alpha = 2 \cdot 9,8 \cdot 0,86 = 16,856 \text{ Н}$$

$$\angle \beta = 0^\circ$$

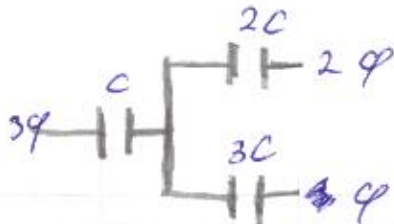


Әлдемі: $F = 16,856 \text{ Н}, \angle \beta = 0^\circ$

N4

$$\varphi = 300 \text{ В}$$

$$C = 10 \text{ мкФ}$$



$$2 \varphi = 2 \cdot 300 = 600 \text{ В}$$

$$3 \varphi = 3 \cdot 300 = 900 \text{ В}$$

$$2C = 2 \cdot 10 = 20 \text{ мкФ}$$

$$3C = 3 \cdot 10 = 30 \text{ мкФ}$$

Берілгені

$$b = 10 \text{ c}$$

$$c = 20 \text{ c}$$

$$a = 20 \text{ c}$$

$$P = ?$$

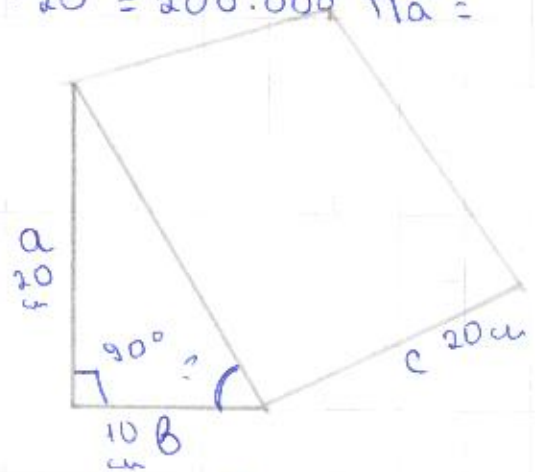
$$\angle = ?^\circ$$

$$\rho = 1000 \text{ кг/м}^3$$

шешімі №3

$$P_{\text{на}} = \rho g h = 1000 \cdot 10 \cdot 20 = 200.000 \text{ Па} = 200 \cdot 10^3 \text{ Па}$$

$$\sin \alpha = \frac{a}{b} = \frac{2}{\sqrt{5}}$$



$$\text{Жауабы: } P_{\text{на}} = 200 \cdot 10^3 \text{ Па}; \sin \alpha = \frac{2}{\sqrt{5}}$$

Берілгені

$$C = 10 \text{ мкФ} = 10 \cdot 10^{-6}$$

$$U = 300 \text{ В}$$

$$q = ?$$



шешімі

$$C = \frac{q}{U}; q = C \cdot U$$

$$q_1 = 900 \cdot 10 \cdot 10^{-6} = 9 \text{ мкКл}$$

$$q_2 = 600 \cdot 2(10 \cdot 10^{-6}) = 6 \cdot 10^{-6} \text{ Кл}$$

$$q_3 = 300 \cdot 3(10 \cdot 10^{-6}) = 3 \cdot 10^{-6} \text{ Кл}$$

$$\text{Жауабы: } q_1 = 9 \text{ мкКл}, q_2 = 6 \cdot 10^{-6} \text{ Кл}, q_3 = 3 \cdot 10^{-6} \text{ Кл}$$

N1

Берілгені

$$m = 1 \text{ кг}$$
$$b = 2 \text{ м} = S$$
$$\mu = 0,5$$
$$A = ?$$

шешуі

$$F = \mu N = 0,5 \cdot 10 = 5 \text{ Н}$$
$$N = mg = 1 \cdot 10 = 10$$
$$A = F \cdot S = 5 \cdot 2 = 10 \text{ Дж}$$

әкіба: $A = 10 \text{ Дж}$

N2

Берілгені

$$t_1 = 60^\circ \text{C}$$
$$t_2 = -75,5^\circ \text{C}$$
$$t_{\text{сәне}} = ?$$

шешуі

$$V_1(t_2 - t_1) = V_2(\Delta t - t_2)$$
$$V_1 t_2 - V_1 t_1 = V_2 \Delta t - V_2 t_2$$
$$\frac{1}{3} t_2 - \frac{1}{3} t_1 = \frac{2}{3} \Delta t - \frac{2}{3} t_2$$
$$t_2 = \frac{2}{3} \Delta t + \frac{1}{3} t_1$$

$$\Rightarrow 13 \frac{1}{3} + 40 + 26 \frac{2}{3} = - \frac{1}{3} t_1 + 1 + \frac{1}{3} t_1$$
$$+ 9 t_1$$
$$0,35 = \frac{1}{9+1} \neq \frac{1}{3+1} = \frac{4}{9+1}$$

$$\frac{0,35}{1} = \frac{4}{9+1} \quad 9t_1 = 11,8 \quad t_1 = 13,1^\circ \text{C}$$

әкіба: $t_{\text{сәне}} = 13,1^\circ \text{C}$

№ 1

Дано:

$$m = 1 \text{ кг}$$

$$\mu_2 = 0,5$$

$$\mu_1 = 0$$

$$L = 2 \text{ м}$$

$$A = ?$$

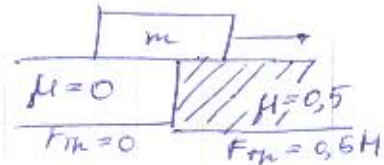
Решение:

$$A = LF \quad F_{\text{н}} = F_{\text{тн}} - F_{\text{тн}} \quad a_{\text{тн}} = F - \mu m \quad F_{\text{тн}} = 0 \text{ Н}$$

$$F = a_{\text{тн}} + \mu m \quad F = m(a + \mu) \quad A = Lm(a + \mu)$$

$$A = 2 \text{ м} \cdot 1 \text{ кг} \left(0,5 \frac{\text{м}}{\text{с}^2} + 0,5 \right) = 2 \text{ Дж}$$

ОТВЕТ: 2 Дж



№ 2

Дано:

$$V_1 = \frac{1}{3}$$

$$V_2 = \frac{1}{4}$$

$$t_1 = 60^\circ \text{C}$$

$$t_2 = 75,5^\circ \text{C}$$

$$t_3 = ?$$

Решение

$$\Delta t = t_2 - t_1 \quad t_3 = t_1 + \Delta t$$

$$\Delta t = 75,5^\circ \text{C} - 60^\circ \text{C} = 15,5^\circ \text{C}$$

$$t_3 = 60^\circ \text{C} + 15,5^\circ \text{C} = 75,5^\circ \text{C}$$

ОТВЕТ: 75,5°C

№ 3

Дано:

$$c = 20 \text{ см}$$

$$a = 20 \text{ см}$$

$$b = 10 \text{ см}$$

$$p = 1000 \frac{\text{кг}}{\text{см}^3}$$

$$\angle \alpha$$

$$p = ?$$

Решение

$$p = FS = \rho Sg$$

$$S = bc$$

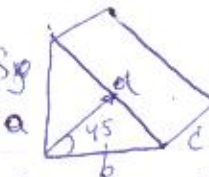
$$d^2 = 400 \text{ см}^2 + 100 \text{ см}^2 = 500 \text{ см}^2$$

$$d = \sqrt{500 \text{ см}^2} = 22,4 \text{ см}$$

$$S = 22,4 \text{ см} \cdot 20 \text{ см} = 448 \text{ см}^2$$

$$p = 1000 \frac{\text{кг}}{\text{см}^3} \cdot 0,0448 \text{ м}^3 \cdot 10 \frac{\text{Н}}{\text{кг}} = 448 \text{ Н}$$

ОТВЕТ: 448 Н



из треугольника Пифагора SL

$$d^2 = a^2 + b^2$$

$$\begin{aligned} 22,4 \text{ см} &= \\ 0,224 \text{ м} &= \\ 0,0448 &= \\ 448 \text{ м}^2 &= 0,0448 \text{ м}^2 \end{aligned}$$

№ 4

Дано:

$$C = 10 \text{ мкФ}$$

$$\varphi = 300 \text{ В}$$

$$q_1 - ?$$

$$q_2 - ?$$

$$q_3 - ?$$

Решение:

$$C = \frac{q}{\varphi} \quad q = C\varphi$$

$$q_1 = 20 \cdot 10^{-6} \text{ Ф} \cdot 600 \text{ В} = 12 \cdot 10^{-3} \text{ Кл}$$

$$q_2 = 30 \cdot 10^{-6} \text{ Ф} \cdot 300 \text{ В} = 9 \cdot 10^{-3} \text{ Кл}$$

$$q_3 = 30 \cdot 10^{-6} \text{ Ф} \cdot 300 \text{ В} = 9 \cdot 10^{-3} \text{ Кл}$$

ответ: $12 \cdot 10^{-3} \text{ Кл}$, $9 \cdot 10^{-3} \text{ Кл}$, $9 \cdot 10^{-3} \text{ Кл}$

См

$$10 \text{ мкФ} = 10 \cdot 10^{-6} \text{ Ф}$$

3:

Задача 1.

Қаю	Решение
$m = 1 \text{ кг}$	$A_{\text{ш}} = \frac{m+L}{\mu} = \frac{1+2}{0,5} = 6$
$L = 2 \text{ м}$	
$\mu = 0,5$	
$A_{\text{ш}} = ?$	

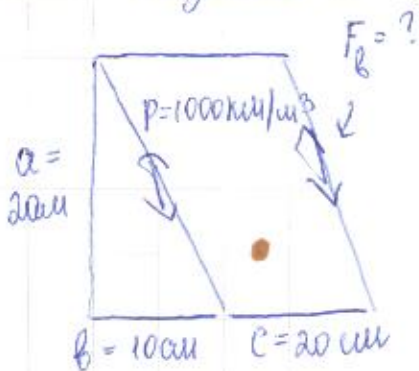
Ответ: $A_{\text{ш}} = 6$.

Задача 2

Қаю	Решение
$T_1 = 60^\circ\text{C}$	$T_{\text{қосын}} = T_1 + T_2 = 60^\circ\text{C} + 75,5^\circ\text{C} = 135,5^\circ\text{C}$
$T_2 = 75,5^\circ\text{C}$	
$T_{\text{қосын}} = ?$	
$T_3 = ?$	

Ответ: $T_{\text{қосын}} = 135,5^\circ\text{C}, T_3 = 67,7^\circ\text{C}$

Задача 3.



Решение

$$F_b = \frac{a+b+c}{\rho} = \frac{20+10+30}{50} = 50 \text{ Н} =$$

$$= \frac{1000}{50} = 20 \text{ Н}$$

20 Н

Ответ: $F = 20 \text{ Н}$, усеі праіей

Задача 4

Дано

Ем. С - 10 тж Ф

Ф = 300 тж

h_к - ?

Отвѣд = 30

Решение

$$h_k = \frac{P}{\text{Ем. С}}$$

$$h_k = \frac{300}{10} = 30$$

№1

Дано:

$$m = 1 \text{ кг}$$

$$L = 2 \text{ м}$$

$$\mu = 0,5$$

$$A = ?$$

Решение:

$$A = mgh$$

$$A = 2 \cdot 1 \cdot 10 = 20 \text{ Дж}$$

$$A = 20 \text{ Дж}$$

$$(A = 5 \text{ Н})$$

$$\text{Ответ: } 20 \text{ Дж}$$

№2

Дано:

$$t_1 = 60^\circ \text{C}$$

$$t_2 = 75,5^\circ \text{C}$$

$$2t_0 = ?$$

Решение:

$$2t = \frac{t_1 + t_2}{2} = \frac{60 + 75,5}{2} = 67,5^\circ \text{C}$$

$$\text{Ответ: } 67,5^\circ \text{C}$$

№3

Дано:

Ш

Решение:

$$b = 10 \text{ см}$$

$$0,1 \text{ м}$$

$$S = a \cdot b = 0,02 \text{ м}^2$$

$$h = \frac{c}{2} = \frac{0,2}{2} = 0,1 \text{ м}$$

$$c = 20 \text{ см}$$

$$0,2 \text{ м}$$

$$F = \rho g h = 1000 \cdot 9,8 \cdot 0,1 = 1000$$

$$F = \rho \cdot S = 0,02 \cdot 1000 = 20 \text{ Н}$$

$$a = 20 \text{ см}$$

$$0,2 \text{ м}$$

$$F = 0,02 \cdot 1000 = 20 \text{ Н}$$

$$\rho = 1000 \frac{\text{кг}}{\text{м}^3}$$

Ответ: 20 Н

$$F = ?$$

№4

Дано:

Ш:

Решение:

$$c = 10 \text{ см} \cdot \varphi$$

$$0,01 \varphi$$

$$\frac{1}{c} = \frac{1}{2c} + \frac{1}{3c} = C = \frac{6c}{5} = \frac{6 \cdot 0,01}{5} = 0,012$$

$$\varphi = 300 \text{ В}$$

$$Q = C \cdot \varphi = 0,012 \cdot 10^{-6} \cdot 300 = 3,6 \cdot 10^{-7}$$

$$Q = ?$$

Ответ: $3,6 \cdot 10^{-7}$

N1

Берілгені:

$$\mu = 0,5$$

$$m = 1 \text{ кг}$$

$$g = 9,8 \text{ м/с}^2$$

$$L = d = 2 \text{ м}$$

Т.ж.:

$$A = ?$$

ХБЖ

Шешуі:

$$A = F \cdot d \quad N = m \cdot g$$

$$F_{\text{тык}} = \mu N$$

$$A = \mu \cdot m \cdot g \cdot d$$

$$A = 0,5 \cdot 1 \text{ кг} \cdot 9,8 \text{ м/с}^2 \cdot 2 \text{ м} = 9,8 \text{ Дж}$$

Жауабы: // 9,8 Дж

N2

Т.ж. берілгені мен-сы

$$T_1 = 60^\circ \text{C}$$

$$T_2 = 75,5^\circ \text{C}$$

$$V_1 = \frac{1}{3} V$$

$$V_2 = \frac{1}{4} V$$

1-ші стакан үшін $m_1 \cdot c \cdot (t_1 - t_0) = (V - V_1) \cdot C \cdot (t_k - t_1)$

$$m_1 = V_1$$

$$V_1 = \frac{1}{3} V \quad t_1 = 60^\circ \text{C}$$

$$\frac{1}{3} V \cdot (60 - t_0) = (V - \frac{1}{3} V) \cdot (t_k - 60)$$

$$\frac{1}{4} V \cdot (75,5 - t_0) = (V - \frac{1}{4} V) \cdot (t_k - 75,5)$$

t_0 және t_k

$$\frac{1}{3} V \cdot (60 - t_0) = \frac{2}{3} V \cdot (t_k - 60)$$

$$(60 - t_0) = 2 \cdot (t_k - 60)$$

$$60 - t_0 = 2t_k - 120$$

$$t_0 = 180 - 2t_k$$



$$\frac{1}{4} V \cdot (75,5 - t_0) = \frac{3}{4} V \cdot (t_k - 75,5)$$

$$75,5 - t_0 = 3 \cdot (t_k - 75,5)$$

$$75,5 - t_0 = 3t_k - 226,5$$

$$t_0 = 302 - 3t_k$$

$$t_0 = 180 - 2t_k$$

$$180 - 2t_k$$

жауабы: $t_0 = 180 - 2t_k$

N3

Берілгені:

$$b = 10 \text{ см}$$

$$c = 2 \text{ см}$$

$$a = 2 \text{ см}$$

$$\rho = 1000 \text{ кг/м}^3$$

Т/к:

$p = ?$

ХБЖ

Шешуі:

$$p = \frac{F}{S}$$

$$F = mg$$

$$\rho = \frac{m}{V}$$

$$m = \rho \cdot V$$

$$V = a \cdot b \cdot c$$

$$S_{т.а} = 2 \cdot S_M + S_б$$

$$S_M = \frac{1}{2} \cdot 20 \cdot 20 = \frac{1}{2} \cdot 400 = \frac{1}{2} = 200 \text{ см}^2$$

$$S_{бк} = P_{кк} \cdot h$$

$$P_{кк} = 20 + 20 + 10 = 50 \text{ см}$$

$$S_б = 50 \text{ см} \cdot 20 = 1000 \text{ см}^2$$

$$S_{т.а} = 2 \cdot 200 + 1000 = 1400 \text{ см}^2$$

жауабы: $10,4 \cdot 10^{-4} \text{ Па}$

Берілгені:

$$C = 10 \text{ мкФ}$$

$$\varphi = 300 \text{ В}$$

$$q \text{ П/к:}$$
$$V = ?$$

ХБЖ

≠

Менші: $C = \frac{q}{\Delta \varphi} \Rightarrow q = C \cdot \Delta \varphi$

$$\frac{1}{C_{\text{ж}}} = \frac{1}{C} + \frac{1}{5C} = \frac{5+1}{5C} = \frac{6}{5C}$$

$$6C_{\text{ж}} = 5C$$

$$C_{\text{ж}} = \frac{5}{6}C$$

$$q = \frac{5}{6}C \cdot \Delta \varphi$$

$$q = \frac{5}{6} \cdot 10^{-6} \cdot 300 = 12 \cdot 10^{-4} = 36 \cdot 10^{-4} \text{ Кл}$$

жауабы: $1136 \cdot 10^{-4} \text{ Кл}$

№1 Берілгені

$$m = 1 \text{ кг} \quad g = 9,8 \text{ м/с}^2$$

$$L = 2 \text{ м}$$

$$\mu = 0,5$$

$$A = ?$$

Шешуі

$$F = \mu N \quad N = mg$$

$$F = \mu mg \quad A = F \cdot L$$

$$A = \mu mgL = 0,5 \cdot 1 \text{ кг} \cdot 9,8 \text{ м/с}^2 \cdot 2 \text{ м} = 9,8 \text{ Дж}$$

Жауабы: $A = 9,8 \text{ Дж}$

№2

Берілгені

$$\frac{1}{3} t_2 + \frac{1}{4} t_1$$

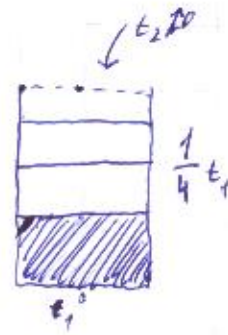
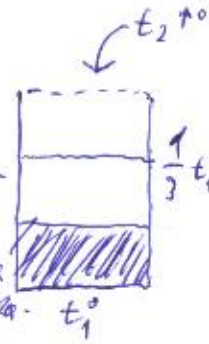
$$\theta_1 = 60^\circ \text{C}$$

$$\theta_2 = 75,5^\circ \text{C}$$

$$t = ?$$

Шешуі

М: бәлше температурасына
судағы температура
мен, сөзбе: тоқалымды
алар мен-менік температурасына
сұрақ берілген. Яғни
 $t_{\text{бәлше}} = 34,5^\circ$



Сұрақ $\frac{1}{2} t$ болса:

шешуі:

$$\frac{1}{2} 111 - \frac{1}{2} 34,5 =$$

$$55,5 - 17,25 = 38,25^\circ$$

болса.

М: бәлше темпе-
ратурасына судағы
температурасына
мен, Яғни
 $t = 38,25^\circ$

2) Сұрақ жартыдан
температура, сұрақ
 $t = 38,25^\circ$ болса

$$\begin{cases} \frac{2}{3} t_2 - \frac{1}{3} t_1 = 60 \\ \frac{3}{4} t_2 - \frac{1}{4} t_1 = 75,5 \end{cases}$$

$$\frac{2}{3} t_2 = 60 - \frac{1}{3} t_1$$

$$\frac{3}{4} t_2 - \frac{1}{4} t_1 = 75,5$$

$$t_2 = \frac{60 - \frac{1}{3} t_1}{\frac{2}{3}}$$

$$\frac{3}{4} t_2 - \frac{1}{4} t_1 = 75,5$$

$$t_2 = \frac{(60 - \frac{1}{3} t_1) \cdot 3}{2}$$

$$\frac{9}{4} \cdot \frac{(60 - \frac{1}{3} t_1) \cdot 3}{2} - \frac{1}{4} t_1 = 75,5$$

$$\begin{cases} t_2 = \frac{(60 - \frac{1}{3} t_1) \cdot 3}{2} \\ \frac{(60 - \frac{1}{3} t_1) \cdot 9}{8} - \frac{1}{4} t_1 = 75,5 \end{cases}$$

$$\frac{540 - 3t_1}{2} - \frac{1}{4} t_1 = 75,5$$

$$\frac{1080 - 6t_1 - t_1}{4} = 75,5$$

$$270 - 1,75t_1 = 75,5$$

$$-1,75t_1 = -194,5$$

$$t_1 = 111$$

$$t_2 = \frac{(60 - \frac{1}{3} t_1) \cdot 3}{2}$$

$$t_2 = \frac{68}{2} = 34,5$$

N3

Берілгені

$$b = 10 \text{ см}$$

$$c = 20 \text{ см}$$

$$a = 20 \text{ см}$$

$$\rho = 1000 \text{ кг/м}^3$$

F = ?

ХӘМ

$$10 \text{ см} = 0,1 \text{ м}$$

$$20 \text{ см} = 0,2 \text{ м}$$

$$20 \text{ см} = 0,2 \text{ м}$$

Шешуі: $A = \frac{1}{2} \cdot b \cdot c$ $F = \rho \cdot A$

$$A = \frac{1}{2} \cdot b \cdot c = \frac{1}{2} \cdot 0,1 \cdot 0,2 = 0,01 \text{ м}^2$$

$$p = \frac{\rho \cdot g \cdot h}{2} = \frac{1000 \cdot 9,8 \cdot 0,1}{2} = 490 \text{ Па}$$

$$F = p \cdot A = 490 \cdot 0,01 = 4,9 \text{ Н}$$

$$\tan \alpha = \frac{b}{c} = \frac{10}{20} = 0,5 \quad \alpha = \arctan(0,5) \approx 26,6^\circ$$

Мағард $\rho = 1000 \text{ кг/м}^3$

$$\alpha = 26,6^\circ$$

~~###~~

Берілгені

$$C = 10 \text{ мкФ}$$

$$\varphi = 300 \text{ В}$$

q = ?

ХӘМ

$$10 \cdot 10^{-6} \text{ Ф}$$

Шешуі

$$C = 2C + 3C = 5C \quad Q = C \cdot U = C \cdot \varphi$$

$$Q = \frac{15C}{8} \cdot 300 \text{ В} = \frac{15 \cdot 10 \cdot 10^{-6} \text{ Ф} \cdot 300 \text{ В}}{8} = 5,625 \text{ мкКл}$$

$$U_{5C} = \frac{Q}{5C} = \frac{5,625 \text{ мкКл}}{5 \cdot 10 \cdot 10^{-6} \text{ Ф}} = 112,5 \text{ В}$$

$$U_{3C} = \frac{Q}{3C} = \frac{5,625 \text{ мкКл}}{3 \cdot 10 \cdot 10^{-6} \text{ Ф}} = 187,5 \text{ В}$$

$$Q_{2C} = 2C \cdot U = 2 \cdot 10 \cdot 10^{-6} \text{ Ф} \cdot 112,5 \text{ В} = 2,25 \text{ мкКл}$$

$$Q_{3C} = 3C \cdot U = 3 \cdot 10 \cdot 10^{-6} \text{ Ф} \cdot 187,5 \text{ В} = 5,625 \text{ мкКл}$$

НЧ

Берілгені

$$C = 10 \text{ нФ}$$

$$U = 300 \text{ В}$$

$$q_1 = ? \quad \varphi_1 = 2 \varphi$$

$$q_2 = ? \quad \varphi_2 = \varphi$$

$$\varphi_3 = 3 \varphi$$

ХДМ
 $10 \text{ нФ} = 10 \cdot 10^{-6} \text{ Ф}$

Шешуі

$$q = C \cdot U$$

$$U = (\varphi_2 - \varphi_1)$$

$$U_1 = (\varphi_3 - \varphi_1)$$

$$U_2 = (\varphi_3 - \varphi_2)$$

$$C = 2C + 3C + C = 6C$$

$$q_1 = 6C \cdot (\varphi_3 - \varphi_1)$$

$$q_2 = 6C \cdot (\varphi_3 - \varphi_2)$$

$$q_1 = 6 \cdot 10 \cdot 10^{-6} \text{ Ф} \cdot (3\varphi - 2\varphi) = 6 \cdot 10 \cdot 10^{-6} \text{ Ф} \cdot 300 \text{ В}$$

$$= 0,018 \text{ Кл}$$

$$q_2 = 6 \cdot 10 \cdot 10^{-6} \text{ Ф} \cdot (3\varphi - \varphi) = 6 \cdot 10 \cdot 10^{-6} \text{ Ф} \cdot 600 \text{ В}$$

$$= 0,036 \text{ Кл}$$

$$\text{Ш: } q_1 = 1,8 \cdot 10^{-3} \text{ Кл}$$

$$q_2 = 3,6 \cdot 10^{-3} \text{ Кл}$$

№2.

Дано:

$$v_1 = \frac{1}{3}$$

$$v_2 = \frac{1}{4}$$

$$v_3 = \frac{1}{2}$$

$$t_1 = 60 \text{ с}$$

$$t_2 = 75,5 \text{ с}$$

$$t_{\text{камень}} = ?$$

$$t_{3 \text{ запов}} = ?$$

Решение:

$$\Delta t = t_2 - t_1 = 75,5 - 60 = 15,5 \text{ с}$$

$$t_{\text{камень}} = t_1 - 2 \Delta t = 60 - 15,5 \cdot 2 = 29 \text{ с}$$

$$t_2 - 3 \Delta t = 29 \text{ с}$$

$$t_{3 \text{ запов}} = t_{\text{камень}} + \Delta t = 29 + 15,5 = 44,5 \text{ с}$$

$$\text{Ответ: } t_{\text{камень}} = 29 \text{ с}; \quad t_{3 \text{ запов}} = 44,5 \text{ с}$$

N 7.

Дано:

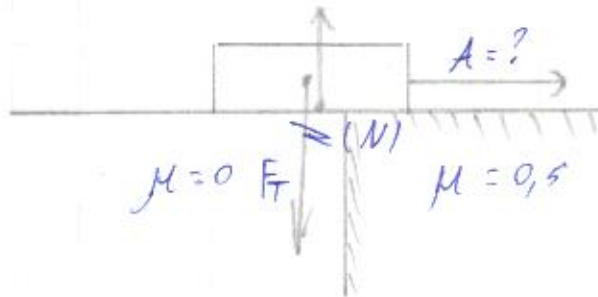
$$m = 1 \text{ кг}$$

$$l = 2 \text{ м}$$

$$\mu = 0,5$$

$$A = ?$$

Решение:



$$F_{\text{тр}} = \mu \cdot N ; N = F_T = mg$$

$$N = 1 \text{ кг} \cdot 9,8 = 9,8 \text{ (Н)}$$

$$F_{\text{тр}1} = 9,8 \cdot 0 = 0 \text{ (Н)} ; F_{\text{тр}2} = 9,8 \cdot 0,5 = 4,9 \text{ (Н)}$$

$$A = \frac{F}{S(l)} ; A_1 = \frac{0}{2} = 0 ; A_2 = \frac{4,9}{2} = 2,45 \text{ (Дж)}$$

$$A = A_1 + A_2 = 0 + 2,45 = 2,45$$

$$\text{Ответ: } A = 2,45 \text{ (Дж)}$$

№3.

Дано:

$$b = 10 \text{ м}$$

$$c = 20 \text{ м}$$

$$a = 20 \text{ м}$$

$$\rho = 1000 \text{ кг/м}^3$$

$$F_A = ?$$

$$z^\circ = ?$$

Ш. Решение:

$$F_A = \rho g V; \quad F_A = 1000 \cdot 9,8 \cdot (0,1 + 0,2 + 0,2) = 4900 \text{ Н}$$



$$z^\circ = 45^\circ$$

№4.

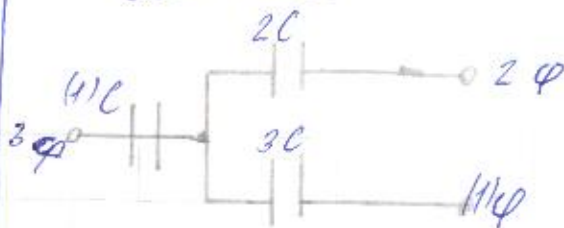
Дано:

$$C = 10 \text{ мкФ}$$

$$\varphi = 300 \text{ В}$$

$$Q = ?$$

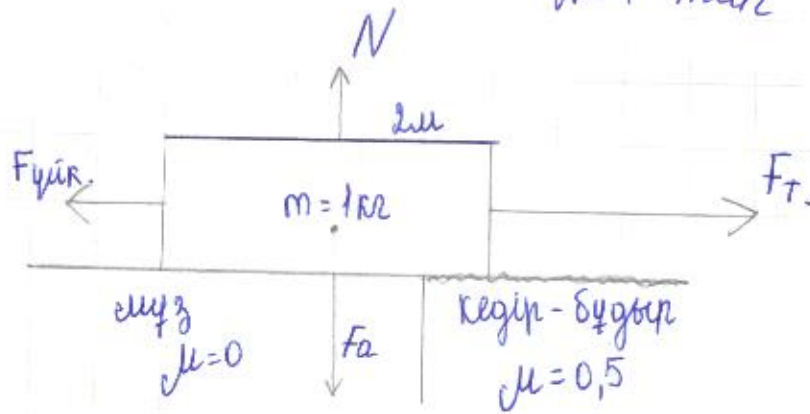
Решение:



Берілгені: $m = 1 \text{ кг}$
 $l = 2 \text{ м}$
 $\mu = 0,5$
 $A_n = ?$

№ 1 - маң

($F_T = ?$)



Бірқалыпты қозғалыс: $a = 0$ $v = \text{const.}$

Еркін түсу үдеуі: $g = 9,8 \text{ м/с}^2$

Ньютоның II-ші заңы негізінде: $F = ma \Rightarrow$

$$F_T + F_{\text{цр.}} + F_a + N = ma$$

Ньютоның III-ші заңы: $-F_{\text{цр.}} = F_{\text{тарм.}}$ (қарсы күш) \Rightarrow

$$-F_{\text{цр.}} + F_T + F_a + N = ma$$

$$-F_{\text{цр.}} + F_T = ma$$

$$F_{\text{цр.}} = \mu mg \Rightarrow$$

$$-\mu mg + F_T = ma$$

$$-0,5 \cdot 1 \cdot 9,8 + F_T = 1 \cdot 0$$

$$-4,9 + F_T = 0$$

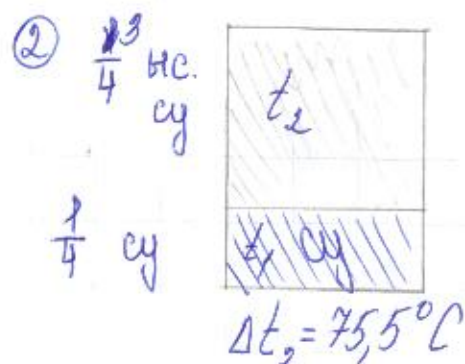
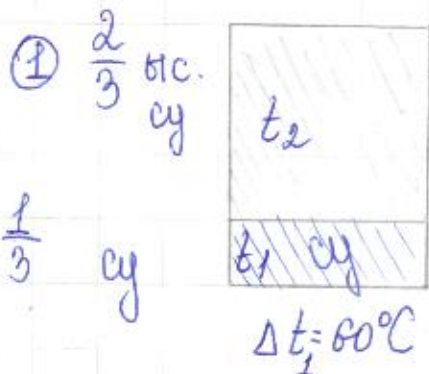
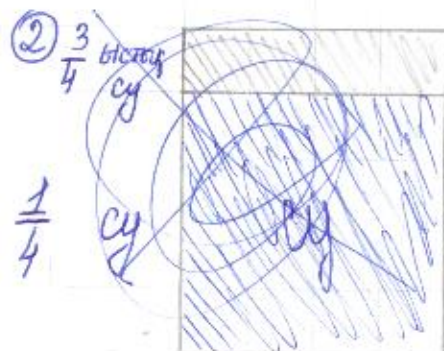
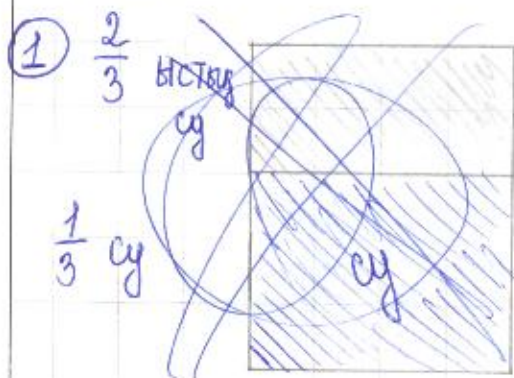
$$F_T = 4,9 \text{ Н} \approx 5 \text{ Н}$$

Пайдалы жұмыс: $A_n = mgh$ не $A = F \cdot S$

$$A_n = 1 \cdot 9,8 \cdot 2 = 19,6 \text{ Дж}$$

Берілгені:

№2-тап



м/к: $t_{\text{бәлше}} - ?$
 $\Delta t_3 - ?$

$$\begin{cases} t_2 + t_1 = 60 \\ t_1 + t_1 = 75,5 \end{cases}$$

$$\begin{aligned} \cancel{t_2 = 60 - t_1} & \quad t_2 = 75,5 + t_1 \\ 60 - & \quad 75,5 + t_1 + t_1 = 60 \\ & \quad 2t_1 = -15,5 \end{aligned}$$

$$t_1 = -7,75^\circ\text{C}$$

$$t_2 = 75,5 - (-7,75) = \cancel{67,75} = 83,25^\circ\text{C}$$

$$t_3 = 83,25 + 7,75 = 91^\circ$$

$$t_{\text{бәлше}} = \frac{t_1 + t_2 + t_3}{3} =$$

$$\frac{60 + 75,5 + 91}{3} = 75,5^\circ \text{ бәлше}$$

Берілгені: $b = 10 \text{ см}$

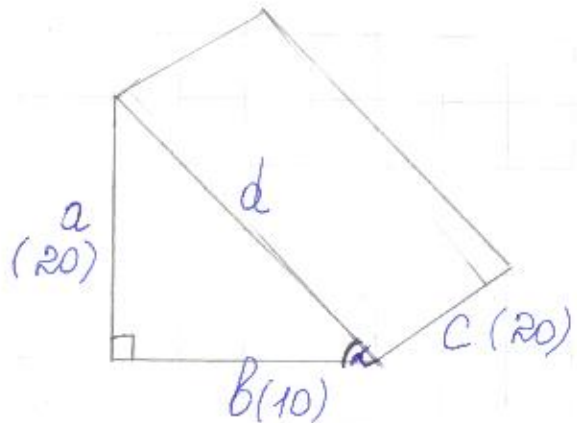
$c = 20 \text{ см}$

$a = 20 \text{ см}$

$(g = 9,8 \frac{\text{м}}{\text{с}^2})$ $\rho_{\text{сү}} = 1000 \text{ кг/м}^3$

π / κ : $\angle - ?$ $F - ?$

$\sqrt{5}$ - тап



Жауап: $b = 10 \text{ см} = 0,1 \text{ м}$

$c = 20 \text{ см} = 0,2 \text{ м}$

$a = 20 \text{ см} = 0,2 \text{ м}$

1) $V = abc = 0,1 \cdot 0,2 \cdot 0,2 = 0,004 \text{ м}^3$ н/е 4000 см^3

2) $P = 1000 \cdot 9,8 \cdot 0,2 = 1960 \text{ Па}$
 $a = h$

3) $F_A = \rho V g = 1000 \cdot 0,004 \cdot 9,8 = 39,2 \text{ Н}$

4) $\sin \alpha = \frac{a}{d} = \frac{20}{10\sqrt{5}} = 2\sqrt{5} = (2 \cdot 2,23 = 4,46)$

Пифагор теоремасы:

$$a^2 + b^2 = d^2$$

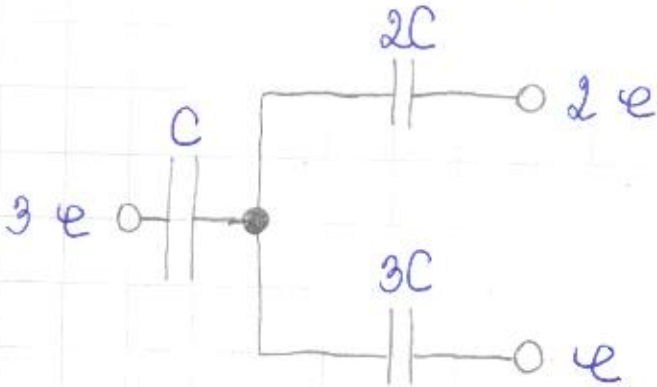
$$20^2 + 10^2 = d^2$$

$$400 + 100 = d^2$$

$$d^2 = 500$$

$$d = \sqrt{500} = 10\sqrt{5}$$

Қатысушының шешімдерін толтыруға арналған еріс / Поле для заполнения решений участника Парақ / Страница № 4

Берілгені: $C = 10 \mu\text{кФ}$, $e = 300\text{В}$ $m/\kappa: q = ?$ 

$$\text{ЖЖЖ: } 10 \mu\text{кФ} = 10 \cdot 10^{-6} \text{ ф}$$

$$1) \quad \begin{aligned} 3e &= 3 \cdot 300 = 900\text{В} = 9 \cdot 10^2 \text{ В} \\ 2e &= 2 \cdot 300 = 600\text{В} = 6 \cdot 10^2 \text{ В} \\ e &= 300\text{В} = 3 \cdot 10^2 \text{ В} \end{aligned}$$

$$2) \quad \begin{aligned} 3C &= 3 \cdot 10 \cdot 10^{-6} = 30 \cdot 10^{-6} \text{ ф} = 3 \cdot 10^{-5} \text{ ф} \\ 2C &= 2 \cdot 10 \cdot 10^{-6} = 20 \cdot 10^{-6} \text{ ф} = 2 \cdot 10^{-5} \text{ ф} \\ C &= 10 \cdot 10^{-6} \text{ ф} \end{aligned}$$

$$3) \quad C = \frac{q}{U} \rightarrow q = CU \quad U [\text{В}] = e [\text{В}]$$

$$q_1 = 10 \cdot 10^{-6} \cdot 9 \cdot 10^2 = 90 \cdot 10^{-4} = 9 \cdot 10^{-3} \text{ кл}$$

$$q_2 = 20 \cdot 10^{-6} \cdot 6 \cdot 10^2 = 120 \cdot 10^{-4} = 1,2 \cdot 10^{-2} \text{ кл}$$

$$q_3 = 30 \cdot 10^{-6} \cdot 3 \cdot 10^2 = 90 \cdot 10^{-4} = 9 \cdot 10^{-3} \text{ кл}$$

№ 1

Берілгені:

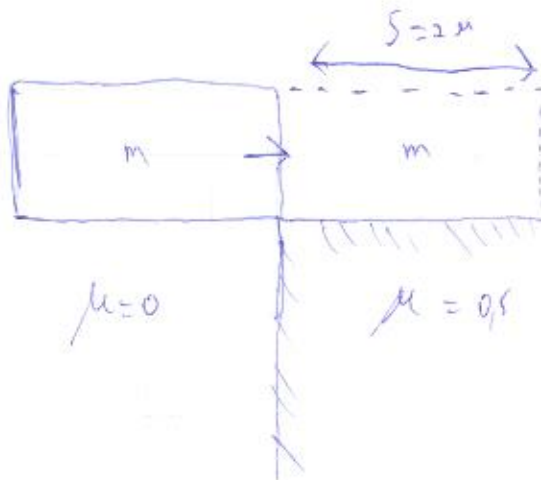
$$m = 1 \text{ т}$$

$$L = 2 \text{ м}$$

$$\mu = 0,5$$

Т.к А

Шешуі:



$$A = FS$$

$S = L$ себеі біз оған мұнда толғадай шартты қоямыз.

$$F_{\text{үйкеліс}} = \mu mg$$

$$F_{\text{үйкеліс}} = 0,5 \cdot 1 \cdot 10 = 5 \text{ Н}$$

$$A = 5 \cdot 2 = 10 \text{ Н}$$

Жауабы: 10 Н

№2

• берімі:

$$V_1 = \frac{1}{3}$$

$$V_2 = \frac{1}{4}$$

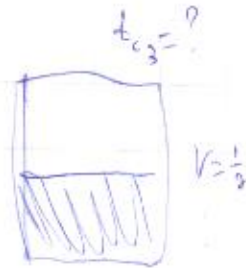
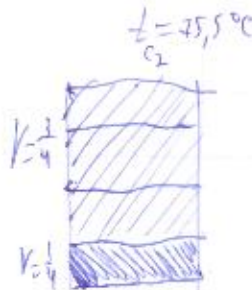
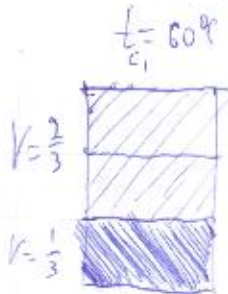
$$t_{c1} = 60^\circ\text{C}$$

$$t_{c2} = 75,5^\circ\text{C}$$

T.K t_0

$$t_{c3}$$

Менші:



$$Q_1 = Q_2$$

$$Q = cm\Delta t \quad m = \rho V$$

$$Q_1 = Q_2$$

$$\rho_1 V_1 (t_1 - t_0) = \rho_2 V_2 (t_0 - t_2)$$

$$\frac{1}{3} \cdot \frac{1}{3} (60 - t_0) = \frac{1}{4} + \frac{1}{4} (t_0 - 75,5)$$

$$60 - t_0 = t_0 - 75,5$$

$$2t_0 = 135,5$$

$$t_0 = 67,75$$

• Менші: $t_0 = 67,75$

№3

Берілгені:

$h = 10 \text{ м}$

$c = 20 \text{ м}$

$a = 30 \text{ м}$

Т.к. $F_{\text{жыны}}$
 $\angle x$

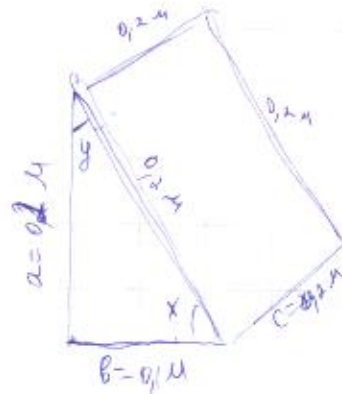
Кб X

Имені:

$0,1 \text{ м}$

$0,2 \text{ м}$

$0,2 \text{ м}$



$F_{\text{жыны}} = \rho g V \quad K = a \cdot b \cdot c$

$F_{\text{жыны}} = 1000 \cdot 10 \cdot 0,1 \cdot 0,2 \cdot 0,2 = 40 \text{ Н}$

Көмегіңізді сұраймын:

Мәңгілік:



В көлеі, с шиктемізді қарастырамыз

$b = \frac{a}{2} \rightarrow 0,1 = \frac{0,2}{2} \rightarrow 0,1 = 0,1$

Теорема бойынша 30° -ға қарсы катет гипотенузаның жартысына тең, демек $\angle y$ бүрышы (суретте белгіленген) $= 30^\circ$ га тең.

Осы жағдайда $\angle x = 180 - (90 + 30) = 60^\circ$ демек $\angle x = 60^\circ$

№4

Берілгені: $C = 10 \text{ мкФ}, U = 300 \text{ В}$

Имені: $C = \frac{q}{U} \rightarrow q = \frac{U}{C}$

$q_1 = \frac{2U}{2C_1} = \frac{2 \cdot 300}{2 \cdot 10 \cdot 10^{-6}} = \frac{600}{20 \cdot 10^{-6}} = 30 \cdot 10^6 \text{ Кл}$

$q_2 = \frac{U}{3C_2} = \frac{300}{3 \cdot 10 \cdot 10^{-6}} = \frac{300}{30 \cdot 10^{-6}} = 10 \cdot 10^6 \text{ Кл}$

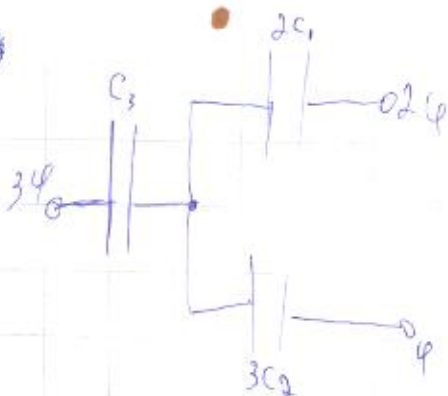
$q_3 = \frac{3U}{C_3} = \frac{3 \cdot 300}{10 \cdot 10^{-6}} = \frac{900}{10 \cdot 10^{-6}} = 90 \cdot 10^6 \text{ Кл}$

$q_{\text{жыны}} = q_1 + q_2 + q_3$

$\frac{1}{q_{\text{жыны}}} = \frac{1}{30} + \frac{1}{10} = \frac{4}{30} \quad q_{\text{жыны}} = 7,5 \cdot 10^6$

$q_{\text{жыны}} = 90 \cdot 10^6 + 7,5 \cdot 10^6 = 97,5 \cdot 10^6 \text{ Кл}$

жауабы: $97,5 \cdot 10^6 \text{ Кл}$



есеп. 1

Берілгені:

$$m = 1 \text{ кг}$$

$$L = 2 \text{ м}$$

$$\mu = 0,5$$

мік: $A = ?$

Формула:

$$A = F \cdot S$$

$$F_{\text{үйк}} = MN = \mu mg$$

$$S = L \left(\begin{array}{l} \text{бізге жұмыс істеу ең аз керек, сондықтан} \\ \text{қандай да аударып береміз.} \end{array} \right)$$

$$S = 2^2 = 4 \text{ м}$$

Шешуі:

$$F_{\text{үйк}} = 0,5 \cdot 1 \text{ кг} \cdot 10 \text{ м/с}^2 = 5 \text{ Н}$$

$$A = 5 \text{ Н} \cdot 4 \text{ м} = 20 \text{ Дж}$$

Науаба: Білімнен мұздан малаумай шығарып алу үшін жұмыс істемей ең аз жұмыс 20 Дж

есеп. 2

Берілгені:

$$t_1 = 60^\circ \text{C}$$

$$t_2 = -75,5^\circ \text{C}$$

$$1 \text{ стакан} = \frac{1}{3} \text{ м}$$

$$2 \text{ стакан} = \frac{1}{4} \text{ м}$$

мік: $Q = ?$

$$\Delta t = ?$$

Формула: $Q = cm\Delta t = cm(t_1 - t_2)$

$$\Delta t = t_1 - t_2 \quad \Delta m = \frac{1}{3} \text{ м} - \frac{1}{4} \text{ м}$$

Шешуі:

$$\Delta t = 60 - (-75,5) = 60 + 75,5 = 135,5^\circ \text{C}$$

$$\Delta m = \frac{1}{3} \text{ м} - \frac{1}{4} \text{ м} = \frac{1}{12} \text{ м}$$

$$Q = c \frac{1}{12} \text{ м} \cdot 135,5 = c \cdot \frac{135,5}{12} \text{ м} \cdot c$$

Науаба: Білім температурасы $\Delta t = 135,5^\circ \text{C}$

Сұраққа науаба: Мартындай малаумай шығарып алу үшін жұмыс істемей ең аз жұмыс 20 Дж

есеп. 3

$$a = 20 \text{ см} = 0,2 \text{ м}$$

$$b = 10 \text{ см} = 0,1 \text{ м}$$

$$c = 20 \text{ см} = 0,2 \text{ м}$$

$$\rho = 1000 \text{ кг/м}^3$$

$$\text{тік: } F = ?$$

Формуласы: $F = mg$ $m = \rho V$ $V = a \cdot b \cdot c \cdot 10^{-3}$

Шешуі: $V = 0,2 \cdot 0,1 \cdot 0,2 \cdot 10^{-3} = 0,004 \cdot 10^{-3} \text{ м}^3$

$$m = 1 \cdot 10^3 \cdot 0,004 \cdot 10^{-3} = 0,004 \text{ кг} = 4 \cdot 10^{-3} \text{ кг}$$

$$F = m \cdot g = 4 \cdot 10^{-3} \cdot 10 = 4 \cdot 10^{-2} = 0,04 \text{ Н}$$

Науабы: Су көлемі қарға $0,04 \text{ Н}$ күшпен қосып түсіледі.

Сұраққа науабы:

Осы күш горизонтальмен тарту күшін насаыды.

есеп. 4

$$C = 10 \text{ мкФ} \quad \varphi = 10 \cdot 10^{-6} \text{ Ф}$$

$$\varphi = 300 \text{ В}$$

$$\text{тік: } q_1, q_2 = ?$$

Шешуі:

$$\frac{1}{2 \cdot 10 \cdot 10^{-6}} + \frac{1}{3 \cdot 10 \cdot 10^{-6}} = \frac{1^{13+0}}{20 \cdot 10^6} + \frac{1^{12}}{30 \cdot 10^6} = \frac{5}{60 \cdot 10^6} = \frac{5}{9,08 \cdot 10^6}$$

$$10 \cdot 10^{-6} + 0,08 \cdot 10^6 = 19,08 \text{ Ф}$$

Формула: $\frac{1}{2C} + \frac{1}{3C} = \frac{1}{6C}$

$$C + \frac{1}{6C} = \frac{7C}{6}$$

$$\frac{1}{2\varphi} + \frac{1}{\varphi} = \frac{1}{3\varphi}$$

$$3\varphi + \frac{1}{3\varphi} = 6\varphi$$

$$q = C \cdot \varphi$$

Шешуі:

$$\frac{1}{600} + \frac{1^{12}}{300} = \frac{3}{600} = 5 \cdot 10^{-3} \text{ В}$$

$$900 + 5 \cdot 10^3 = 9 \cdot 10^2 + 5 \cdot 10^3 =$$

$$14 \cdot 10^3 = 1,4 \text{ В}$$

$$q = 1,4 \cdot 10,08 = 11,49 \text{ Кл}$$

Науабы: конденсатордағы заряды $q = 11,49 \text{ Кл}$

№1 Дано:

$$m = 1 \text{ кг}$$

$$L = 2 \text{ м}$$

$$\mu = 0,5$$

$$A = ?$$

Решение:

$$A = \mu \frac{L}{m}$$

$$A = 0,5 \cdot \frac{200}{1} = 100 \text{ Дин}$$

Ответ: $A = 100 \text{ Дин}$

№2

Дано:

$$t_{\frac{1}{3} \text{ ст. в.}} = 60^\circ \text{C}$$

$$t_{\frac{1}{4} \text{ ст. в.}} = 75,5^\circ \text{C}$$

$$t_{\text{ком}} = ?$$

$$t_{\frac{1}{2} \text{ ст. в.}} = ?$$

$$t_{1 \text{ ст. в.}} = ?$$

Ответ: $t_{\text{ком}} = 15,5^\circ$, $t_{\frac{1}{2} \text{ ст. в.}} = 54,5^\circ$, $t_{1 \text{ ст. в.}} = 49^\circ$

Решение:

$$t_{\text{ком}} = 15,5^\circ \quad t_{\text{ком}} = 75,5^\circ - 60^\circ = 15,5^\circ$$

$$t_{\frac{1}{2} \text{ ст. в.}} = 54,5^\circ = 60^\circ - 15,5^\circ$$

$$t_{1 \text{ ст. в.}} = \cancel{60} 54,5^\circ - 15,5^\circ = 49^\circ$$

№3

Дано:

$$b = 10 \text{ см}$$

$$a = 20 \text{ см}$$

$$\rho = 1000 \text{ кг/м}^3$$

$$c = 20 \text{ см}$$

$$F = ?$$

Решение:

$$F = \frac{\rho}{a + b + c}$$

$$F = \frac{1000}{10 + 20 + 20} = \frac{1000}{50} = 20 \text{ Н}$$

$$\angle F = 90^\circ$$

Ответ: $F = 20 \text{ Н}$, $\angle F = 90^\circ$

№4

$$C = 10 \text{ шк } \varphi$$

$$\varphi = 300 \text{ В}$$

$$Z_1 = ?$$

$$Z_2 = ?$$

$$Z_3 = ?$$

$$Z_{\text{от}} = ?$$

Решение:

$$Z_1 = \frac{3\varphi}{C} = \frac{3 \cdot 300}{10} = \frac{900}{10} = 90$$

$$Z_2 = \frac{2\varphi}{2C} = \frac{2 \cdot 300}{2 \cdot 10} = \frac{600}{20} = 30$$

$$Z_3 = \frac{\varphi}{3C} = \frac{300}{3 \cdot 10} = \frac{300}{30} = 10$$

$$Z_{\text{от}} = 90 + 30 + 10 = 130$$

Ответ: $Z_1 = 90, Z_2 = 30, Z_3 = 10, Z_{\text{от}} = 130$

1) Дано

$$m = 1 \text{ кг}$$

$$L = 2 \text{ м}$$

$$N = 0,5$$

$$g = 9,8 \text{ Н/кг}$$

A = ?

См

Решение

$$F^0 = Nmg \cdot \cos \alpha \text{ (схема тригони)}$$

$$F^0 = mg \cdot \sin \alpha \text{ (схема тангенти)}$$

$$F^0 = F^1 + F^2$$

$$A = mgL = 1 \cdot 9,8 \cdot 2 = 19,6 \text{ Дж}$$

Ответ: A = 19,6 Дж.

2) Дано

$$\alpha_1 = 60^\circ$$

$$\alpha_2 = 75,5^\circ$$

См

Решение

$$\alpha = \frac{\alpha_1 + \alpha_2}{2}$$

$$= \frac{60 + 75,5}{2} = \frac{135,5}{2} = 67,5^\circ$$

Ответ: $67,5^\circ$.

3) Дано

$$b = 10 \text{ см}$$

$$c = 20 \text{ см}$$

$$a = 20 \text{ см}$$

$$\rho = 1000 \text{ кг/м}^3$$

F = ?

См

Решение

$$P = \rho gh$$

$$F^0 = P \cdot S \quad S = a \cdot b \cdot c$$

$$S = 20 \cdot 10 \cdot 20 = 4000$$

$$F^0 = 1000 \cdot 4000 = 4000000 \text{ Н}$$

Ответ: 4000000 Н / 4 МН.

3. Дано:

$$b = 10 \text{ см}$$

$$c = 20 \text{ см}$$

$$a = 20 \text{ см}$$

$$\rho = 1000 \text{ кг/м}^3$$

$$g = 9.8 \text{ Н/кг}$$

$F = ?$

Ся

$$0.1 \text{ м}$$

$$0.2 \text{ м}$$

Решение:

$$S = a \cdot b = 0.2 \cdot 0.1 = 0.02$$

$$h = \frac{c}{2} = 0.1$$

$$p = \rho g h = 1000 \cdot 9.8 \cdot 0.1 = 980$$

$$F = p \cdot S = 980 \cdot 0.02 = 19.6 \text{ Н}$$

Ответ: $F = 19.6 \text{ Н}$.

4 Дано

$$C = 10 \text{ мкФ}$$

$$\varphi = 300 \text{ В}$$

$Q = ?$

Ся

Решение:

$$\frac{1}{C} = \frac{1}{2C} + \frac{1}{3C} \Rightarrow C = \frac{6C}{5}$$

$$= \frac{6 \cdot 10}{5} = 12$$

$$Q = C \cdot \varphi = 12 \cdot 10^{-6} \cdot 300 = 3.6 \cdot 10^{-3}$$

Ответ: $Q = 3.6, \text{ мкк}$.

а) Берілгені:

Мәңгі: $P = 1 \cdot 10 = 10$ $F = 10 \cdot 0,5 = 5$ $A = 5 \cdot 2 = 10,0^*$

$$m = 1 \text{ м}$$

$$l = 2 \text{ м}$$

$$h = 0,5$$

Қызыл: $10,0^*$

б) Таби.

Мәңгі: $V = \frac{4 \cdot 1 \cdot 0,2 \cdot 0,2^2}{2} = 0,002 \text{ м}^3$

$$b = 10 \text{ см} = 0,1$$

$$m = 1000 \cdot 0,002 = 2$$

$$c = 20 \text{ см} = 0,2$$

$$a = 20 \text{ см} = 0,2$$

$$\rho = 1000 \text{ кг/м}^3$$