$A_г = p\Delta V = pV$

$p = const$

$pV = \nu RT$

$V \sim T$

$\Delta T = T$

Ответ: $A_{газ} = pV$, $\Delta T = T$ 10Б

Дано:

$\rho = \rho_1 = \rho_2$

$V_1 = V_2$

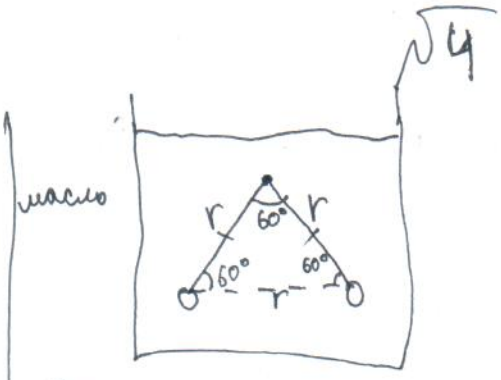
$q_1 = q_2$

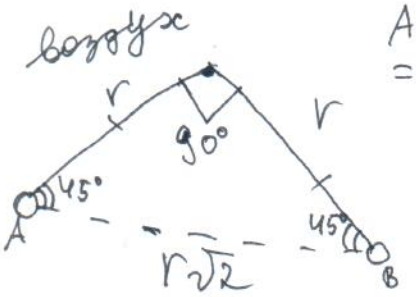
$2\rho_м = \rho_в$

$\alpha_1 = 60°$

$\alpha_2 = 90°$

$\varepsilon_м$ — ?



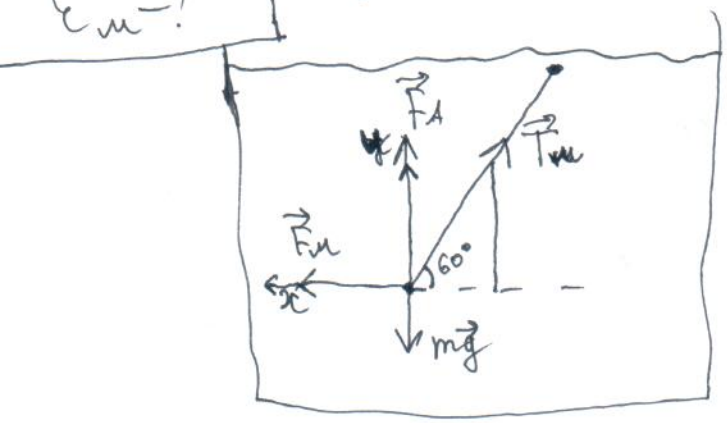


$AB = \sqrt{r^2 + r^2} = \sqrt{2r^2} = r\sqrt{2}$ (теор. Пиф.)

$$F_м = k\frac{q_1 q_2}{r^2 \varepsilon_м} = \frac{kq^2}{r^2 \varepsilon_м} \Rightarrow \varepsilon_м = \frac{kq^2}{F_м r^2}$$

$$F_в = k\frac{q_1 q_2}{(r\sqrt{2})^2 \varepsilon_{возд}} = \frac{kq^2}{2r^2 \cdot 1} = \frac{kq^2}{2r^2} \Rightarrow kq^2 = F_в \cdot 2r^2$$

Масло:



II закон Ньютона:

$\vec{F}_м + \vec{F}_A + m\vec{g} + \vec{T}_м = 0 = m\vec{a}$

На ось Ox:

$F_м = T_м \cos 60°$

На ось Oy:

$F_A - mg + T_м \sin 60° = 0$

$T_м \sin 60° = mg - F_A$

$T_м = \frac{mg - F_A}{\sin 60°}$

$F_м = (mg - F_A)\frac{\cos\alpha}{\sin\alpha} =$

$= (mg - \rho_м V_м g)\operatorname{ctg}\alpha =$

$= (mg - \frac{\rho_м}{2} \cdot \frac{m}{\rho_м} g)\operatorname{ctg}\alpha =$

$= \frac{mg\operatorname{ctg}\alpha}{2} = \frac{mg\operatorname{ctg}60°}{2}$