

1

$$t_1 = 20 \text{ сек}$$

$$P_1 = P_0 \cdot 1,8$$

$$t_2 = 50 \text{ сек}$$

$$P_2 = P_0 \cdot 2,4$$

$$g = 10 \text{ м/с}^2$$

$$F = ma$$

$$mg \cdot 1,8 = P_1$$

$$mg \cdot 2,4 = P_2$$

$$P_1 = m(g+a) \uparrow$$

$$mg \cdot 1,8 = m(g+a)$$

$$1,8g = g+a$$

$$a = 1,8g - g$$

$$a = 18 - 10$$

$$a \approx 8 \text{ м/с}^2$$

$$mgh = \frac{mv^2}{2} \quad 3 \text{ б.}$$

$$gh = \frac{v^2}{2}$$

$$h = \frac{v^2}{2g}$$

$$v^2 = 2gh$$

$$v_1 = \sqrt{2gh}$$

$$= \sqrt{2 \cdot 10 \cdot 2000} = 200 \text{ м/с}$$

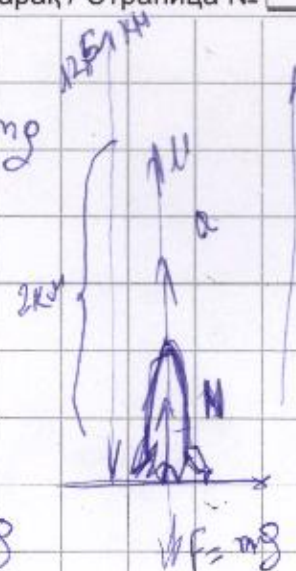
$$h_1 = \frac{gt_1^2}{2} = \frac{10 \cdot 20^2}{2} = 2000 \text{ м.}$$

$$h_2 = \frac{gt_2^2}{2} = 12,500 \text{ м}$$

$$12,5 \text{ км.}$$

$$a = \frac{\Delta v}{\Delta t} = \frac{v_2 - v_1}{t_2 - t_1} = \frac{500 - 200}{50 - 20} = \frac{300}{30} = 10 \text{ м/с}^2$$

$$v_2 = \sqrt{2gh_2} = 500 \text{ м/с.}$$



2

V_1, V_3 ?

T_1, T_2 ?



$$V_2 = V_4$$

$$\frac{V_1}{T_1} = \frac{V_2}{T_2}$$

$$V_2 = \frac{V_1 \cdot T_2}{T_1}$$

$$V_2 = V_4 \Rightarrow \frac{V_1 \cdot T_2}{T_1}$$

$$\frac{T_1}{V_1} = \frac{T_2}{V_2} \Rightarrow V_2 = \frac{T_2 \cdot V_1}{T_1}$$

1-2 = изобара

2-3 = изотерма

3-4 = изобара

4-1 = изотерма

$m = \text{const}$

P, V, T

термодинамич
параметрлр

$$\frac{PV}{T} = \text{const}$$

$$PV = \text{const}$$

$$\frac{V}{T} = \text{const}$$

$$PV = \nu RT$$

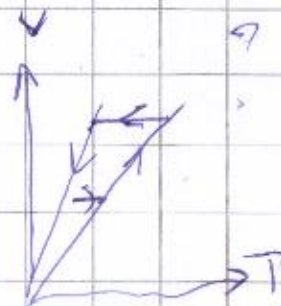
$$PV = \frac{m}{M} RT$$

$$P_1 V_1 = \nu R T_1$$

$$A = \nu R \Delta T$$

$$A = P \Delta V$$

$$V_1 = \frac{\nu R T_1}{P_1}$$



③

$$I_2 = I_1 / 4$$

$$I_1 = I_2 \cdot 4 = 4I_2$$



$\lambda \times a$

$E; C; k$

$$W = \frac{cu^2}{2}$$

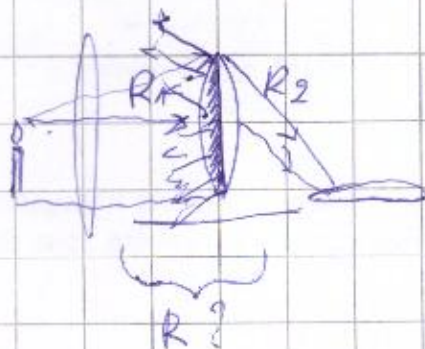
$x \cdot C = nC$ при $x > a$.

$n = 1,5$

4.

$$\frac{1}{F} = (n-1) \left(\frac{1}{R_1} + \frac{1}{R_2} \right)$$

$$\frac{\sin \alpha}{\sin \beta} = 1,5$$



$$R_1 = R_2$$

$$\sin \alpha = \frac{2}{\sqrt{3}}$$

$$\Gamma = \frac{1}{f} + \frac{1}{d}$$

$$D = \frac{1}{F}$$

$$D = (n-1) \left(\frac{1}{R_1} + \frac{1}{R_2} \right)$$

$$\frac{1}{F} = (1,5-1) \left(\frac{1}{R_1} + \frac{1}{R_2} \right)$$

$$\frac{1}{d} = \Gamma - \frac{1}{f}$$

$$\frac{1}{F} = 0,5 \left(\frac{1}{R_1} + \frac{1}{R_2} \right)$$

$$\frac{1}{F} = \frac{1}{2} \left(\frac{1}{R_1} + \frac{1}{R_2} \right)$$

$$\frac{1}{F} = \frac{\frac{1}{R_1} + \frac{1}{R_2}}{2}$$

$$F = \frac{2}{\frac{1}{R_1} + \frac{1}{R_2}}$$