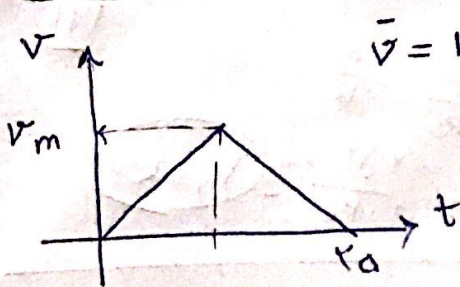


$$r = 9t^2 i + 14t^2 j \Rightarrow |r| = 10 \rightarrow t = 1.5$$

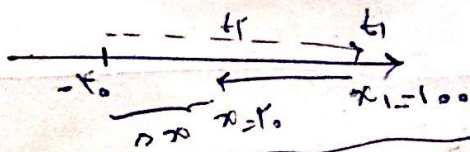
$$v = 18t i + 28t j \xrightarrow{t=1} v = 18i + 28j \Rightarrow |v| = \sqrt{18^2 + 28^2} = 34$$



$$\bar{v} = 10$$

$$\Rightarrow \bar{v} = \frac{\Delta x}{\Delta t} \Rightarrow 10 = \frac{\frac{1}{2} \times v_m \times 2t}{2t} \Rightarrow \frac{1}{2} v_m = 10 \Rightarrow v_m = 20$$

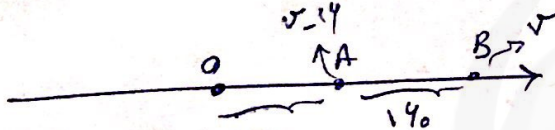
* سطح زیر نمودار v-t برابر جابجایی است



$$\bar{v} = \frac{\Delta x}{\Delta t} = \frac{90}{10} = 9$$

$$a = 2$$

$$AB: \bar{v} = \frac{\Delta x}{\Delta t} = \frac{140}{70} = 2$$



$$\bar{v} = \frac{v_A + v_B}{2} \Rightarrow \frac{14 + 0}{2} = 7$$

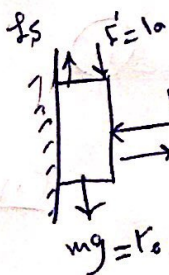
$$2v - 14 = 0 \Rightarrow 2v = 14 \Rightarrow v = 7$$

$$v_B = 2t \Rightarrow v_A = 14$$

$$v_A = 2t + v_B$$

$$v_A = 2 \times 1 + v_B$$

$$\Delta x_{AB} = \frac{v_A}{2} = \frac{14}{2} = 7$$



$$F = N = 40$$

$$f_s \sin \theta = \mu_s N = \frac{7}{10} \times 40 = 28$$

$$mg < f_s \sin \theta \Rightarrow \sum \tau = 0 \Rightarrow f_s = 20 + 10 = 30$$

$$\text{نیروی برآوردی} = \sqrt{f_s^2 + N^2} = \sqrt{30^2 + 40^2} = \sqrt{2500} = 50$$

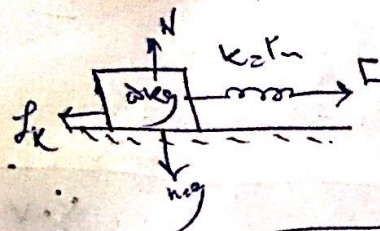
$$m = 1.0 \text{ kg}$$

$$g = 9.8$$

$$g = \frac{G M_E}{R_E^2} \Rightarrow G M_E = g R_E^2$$

$$F = mg = m \times \frac{G M_E}{R_E^2} = \frac{m g R_E^2}{(R_E + h)^2}$$

$$= \frac{1 \times 9.8 \times \frac{6.37 \times 10^6}{100} \times \frac{4 \times 10^7 \times 6.67 \times 10^{-11}}{100}}{100} = 1.94$$



$$a \text{ constant} \Rightarrow a = 0 \Rightarrow F = f_k = k \Delta L = \gamma_{ps} \times \frac{\Delta}{\gamma_{ps}} = 10$$

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$$f_k = \mu_k N \Rightarrow 10 = \mu_k \Delta \Rightarrow \mu_k = \frac{1}{\Delta} = \left(\frac{\gamma}{10} \right)$$

$$P = \frac{mgh}{t} = \frac{\gamma \Delta \gamma_{ps} k 10 \times \Delta}{\gamma_{ps} \gamma_{ps}}$$

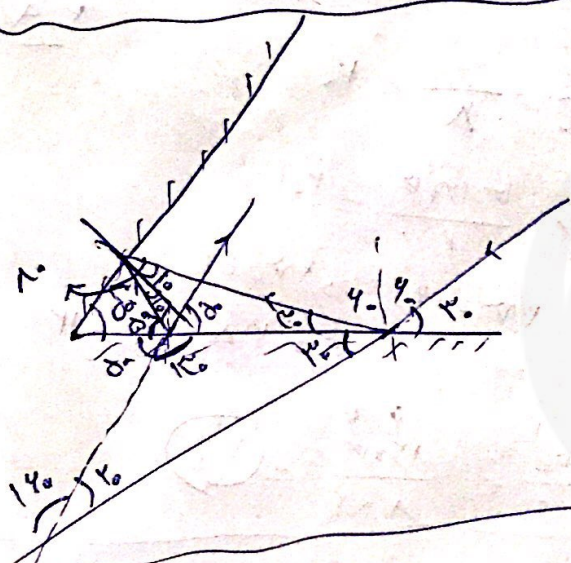
$$\frac{P}{P_s} = \frac{1}{10} \Rightarrow \frac{\gamma \Delta \gamma_{ps}}{\gamma_{ps}} = \frac{1}{10}$$

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$$\text{If } P_s = \gamma \Delta \gamma_{ps} \Rightarrow P_s = \frac{\gamma \Delta \gamma_{ps}}{\gamma_{ps}} = 10, \Delta \text{ kw}$$

$$F = \gamma_0 \delta + \delta j \quad \Rightarrow \quad w = Fd = \gamma_0 \times 4 = 140$$

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$$w = 140$$

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$$AB = \Delta \Rightarrow P = n f_0 m = \frac{1}{n+1}$$

$$P = \gamma_0$$

$$n = \frac{\gamma}{f_0} \Rightarrow m = \frac{1}{\frac{\gamma}{f_0} + 1} = \frac{f_0}{\gamma}$$

$$A'B' = \frac{f_0}{\gamma} AB = \frac{f_0}{\gamma} \times 8 = 2$$

$$D = -\Delta$$

$$f = -f_0$$

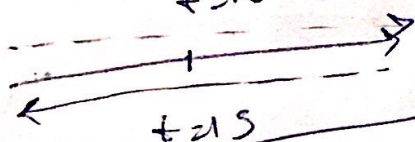
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$$\gamma A = f \Rightarrow A = \gamma_{em}$$

$$V_m = A \omega = A \frac{\gamma_{\eta}}{T} = \gamma \times \frac{\gamma_{\eta}}{\gamma} = \gamma_{\eta}$$

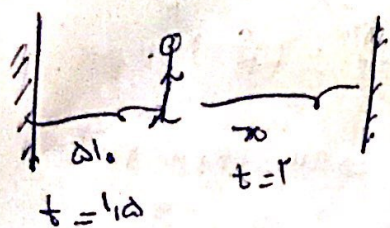
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$$t = 1s \Rightarrow T = 1s$$



... ..

... ..



$$\Delta x_1 = v_1 t_1 \Rightarrow v_1 = \frac{\Delta x_1}{t_1} = 34$$

$$\Delta x_2 = v_2 t_2 = 34 \times 2 = 68$$

$$\Delta x_1 + \Delta x_2 = 68 + 34 = 102$$

۲۱. $\rightarrow$ حرکت است. $\rightarrow$ تقریباً ۱۰۰ متر شتاب دارد.

$$w = hf = h \frac{c}{\lambda} \Rightarrow \lambda = \frac{hc}{w} = \frac{6.626 \times 10^{-34} \times 3 \times 10^8}{4 \times 10^{-19}} = 4.97 \text{ nm}$$

$$\frac{1}{\lambda} = 2\pi \left(\frac{1}{\lambda_1} - \frac{1}{\lambda_2} \right)$$

۲۲. $\rightarrow$ بیشتر مقدار $n = \infty$ کوتاه ترین طول موج

$$\frac{1}{\lambda} = \frac{1}{\lambda_1} \left(1 - \frac{1}{\infty} \right) = \frac{1}{\lambda_1} \Rightarrow \lambda = \lambda_1$$

۲۳. $\rightarrow$ نیروی گرانشی دو بار، از نیروی هسته‌ای بین نوکلئون‌ها ضعیف‌تر است

$$E = \frac{F}{q} = \frac{1.018 \times 10^{-14} \text{ J}}{2 \times 10^{-4}} = 5.09 \times 10^{-11} \text{ V}$$

$$|E| = 9 \times 10^9$$

۲۴. $\rightarrow$ $F_T = F$

$$F_T - F_T = F_T \Rightarrow \frac{q_0 \times F_T \times L}{L^2} - \frac{q_0 \times F_T \times L}{L^2} = \frac{q_0 \times F_T \times L}{L^2}$$

$$\frac{q_0 \times F_T \times L}{L^2} = \frac{q_0 \times F_T \times L}{L^2} \Rightarrow F_T = -F$$

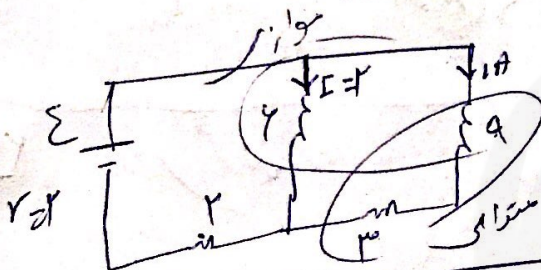
$$u = 1r \frac{g}{c} \Rightarrow \frac{u}{u_1} = \left(\frac{g}{g_1} \right)^r \Rightarrow \frac{u_1 + 9 \times 10^{-4}}{u_1} = \left(\frac{2}{\sqrt{2}} \right)^r$$

$$\Rightarrow \frac{u_1 + 9 \times 10^{-9}}{u_1} = \frac{12}{14} \Rightarrow 12u_1 + 12 \times 9 \times 10^{-9} = 12u_1 \Rightarrow u_1 = 14 \times 10^{-9} \Rightarrow u_1 = 14 \times 10^{-9}$$

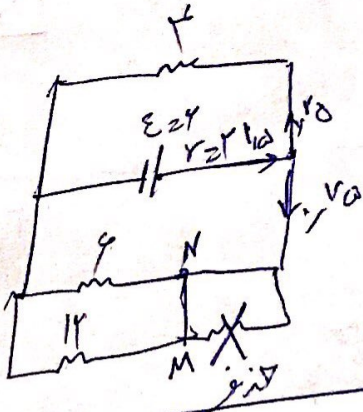
$$u_1 = 1/4 \text{ eV} \Rightarrow 14 \times 10^{-8} = 1/4 \times \frac{151}{10} \Rightarrow v^2 = \frac{5 \times 14}{10} = 7$$

$$R_1 = r \Rightarrow R_T \uparrow \Rightarrow I_T \downarrow \quad \uparrow \textcircled{V = \mathcal{E} - I_T r} \downarrow$$

$$P_{\max} \rightarrow R=9 \Rightarrow r=1r \Rightarrow I = \frac{v}{R} = \frac{1r}{9} = 1A \Rightarrow I_T = 1A$$



$$\Rightarrow I = \frac{\Sigma T}{R + r} \Rightarrow P = \frac{\Sigma}{1} \Rightarrow \Sigma \text{ (circled)}$$



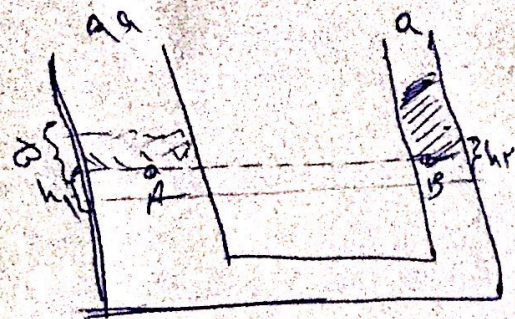
$$I_{T2} \cdot \frac{9}{r+1} = \frac{4}{2} = \frac{4}{r}$$

$$I_{MN} \approx \gamma^{1/2}$$

۲۵. F, B, و جرم خود را / محاسبه

$$B = \frac{\mu_0 n I}{L} = \frac{\mu_0 n I \sum_{k=1}^N \frac{1}{r_k} \propto \mu_0 n I \ln \left(\frac{r_N}{r_1} \right)}{L} = \mu_0 n I \ln \left(\frac{r_N}{r_1} \right)$$

$$E = \frac{N \Delta \phi}{\Delta t} = \frac{N A \Delta B}{\Delta t} = \frac{1000 \times 0.01 \times 10^{-4} \times \frac{1}{10}}{\frac{1}{100}} = 100 \text{ V}$$



$$P_A = P_B \Rightarrow \rho h = \rho h$$

$$\frac{\rho}{\rho} \times h = 1 \times h \Rightarrow \rho h = \rho h$$

$$h_1 + h_2 = 4 \Rightarrow \rho h_1 + \rho h_2 = 4 \Rightarrow \rho h_1 = \rho h_2 \Rightarrow \rho h_1 = \rho h_2$$

$$h_1 + h_2 = 4 \Rightarrow \rho h_1 + \rho h_2 = 4 \Rightarrow \rho h_1 = \rho h_2 \Rightarrow \rho h_1 = \rho h_2$$

$$h_1 + h_2 = 4 \Rightarrow \rho h_1 + \rho h_2 = 4 \Rightarrow \rho h_1 = \rho h_2 \Rightarrow \rho h_1 = \rho h_2$$

۲۳۴. دو سیال با فشار برابر در دو لوله قرار داده شده است.



$$m L F = m \cos \theta \Rightarrow m \times \frac{1}{2} = \frac{1}{2} \times 1 \times 2 \Rightarrow m = 2.0$$

$$\frac{1}{2} m$$

$$\frac{1}{2} m \Rightarrow \frac{1}{2} m = 2.0 \Rightarrow m = 2.0$$

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$$P_A = P_B \Rightarrow \frac{m_A C_A \cos \theta_A}{m_B C_B \cos \theta_B} = \frac{m_B C_B}{m_A C_A} = \frac{P_B C_B}{P_A C_A} = \frac{1 \times 1}{2 \times 1} = \frac{1}{2}$$

$$0.9377509154$$

$$@konkur4u$$