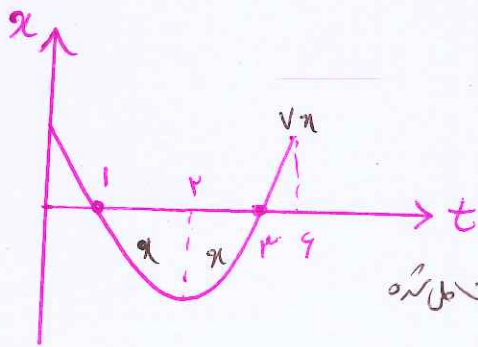


۲.۶ - گزینه ۱

$$\Delta x = \frac{1}{2} a t^2 \rightarrow \left. \begin{array}{l} \Delta x_1 = \frac{1}{2} a t^2 \\ \Delta x_2 = \frac{1}{2} a (t+2)^2 \end{array} \right\} \rightarrow t^2 = \frac{9}{14} (t+2)^2$$

$$\xrightarrow{\text{بجای}} t = \frac{3}{2} (t+2) \rightarrow t = 4s$$

گزینه ۲

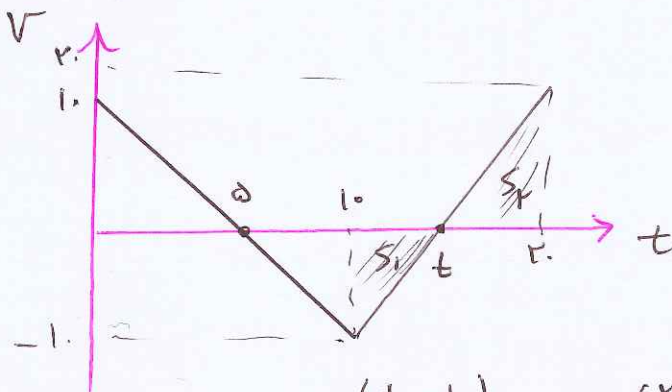


$$v_{av} = \frac{2x + \Delta x + 7x}{5} = 2 \rightarrow x = 1$$

$$\text{مساحت کل} = 2x + 3x + \Delta x + 7x = 17x = 17$$

گزینه ۳

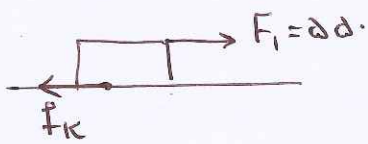
۲.۹ - رسم نمودار v-t



گزینه ۴

$$\frac{(2-1)}{2} \times 1 = \frac{(2-t) \times 2}{2} \rightarrow t = \frac{5}{3} s$$

- ۲۱ -

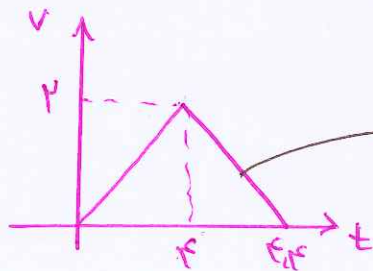


$$f_k = \mu_k \times N \Rightarrow 10 \times 100 \times 10 = 500 \text{ N}$$

$$F = ma \rightarrow 50 - 500 = 100 a_1 \rightarrow a_1 = -4.5$$



$$F = ma \rightarrow -500 = 100 a_2 \rightarrow a_2 = -5$$



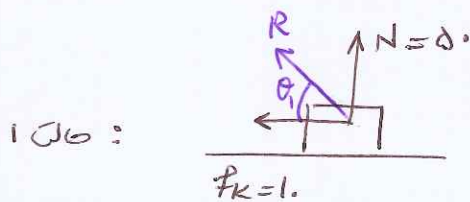
$$\Delta x = S = \frac{v_{\text{max}} \times t}{2} = v_{\text{avg}} \times t$$

توسط نیروی

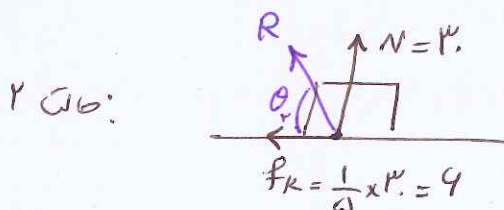
- ۲۲ -

فردی شود $\rightarrow$ C به مرکز $\rightarrow$ سرعت ثابت $\rightarrow$ حالت اول

$$\rightarrow f_k = 10 \rightarrow \mu_k \times 50 = 10 \rightarrow \mu_k = \frac{1}{5}$$



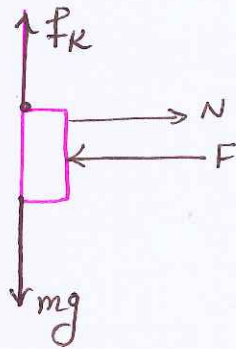
$$\tan \theta_1 = \frac{N}{f_k} = \frac{50}{10} = 5$$



$$\tan \theta_2 = \frac{N}{f_k} = \frac{30}{6} = 5$$

توسط نیروی

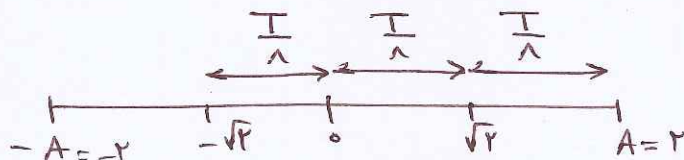
- ۲۱۲



$$f_k - mg = ma \rightarrow f_k - 2 \times 10 = 2 \times 2 \rightarrow f_k = 24 \text{ N}$$

$$N = F = 22 \text{ N}$$

$$\text{مقدار نیروی سطح} \quad R = \sqrt{N^2 + f_k^2} = \sqrt{22^2 + 24^2} = 8 (\sqrt{49 + 36}) = 40$$

~
نیروی سطح

$$\Delta t = 4 \frac{T}{4} = \frac{T}{1} = \frac{2\pi}{\omega} = 2 \text{ s}$$

- ۲۱۳

$$f = \frac{1}{T} \rightarrow T = 4 \text{ s}$$

~
نیروی سطح

$$\bar{v} = \frac{\Delta u}{\Delta t} = \frac{2\sqrt{r}}{T} = \sqrt{r} \text{ cm/s}$$

- ۲۱۴

$$\left. \begin{aligned} E &= K_{\max} = 1/2 \\ v &= 1/4 \end{aligned} \right\} \rightarrow E = K + U \rightarrow K = E - U = 1/4$$

~
نیروی سطح

$$K = \frac{1}{2} m v^2 \rightarrow 1/2 \times 10^{-3} = \frac{1}{2} \times 1/4 v^2 \rightarrow v = 2\sqrt{5} \text{ cm/s}$$

- ۲۱۵

$$\beta_r - \beta_i = 10 \log \frac{I_r}{I_i} = 10 \log 10^3 = 30 \text{ dB}$$

~
نیروی سطح

@fizikalireza

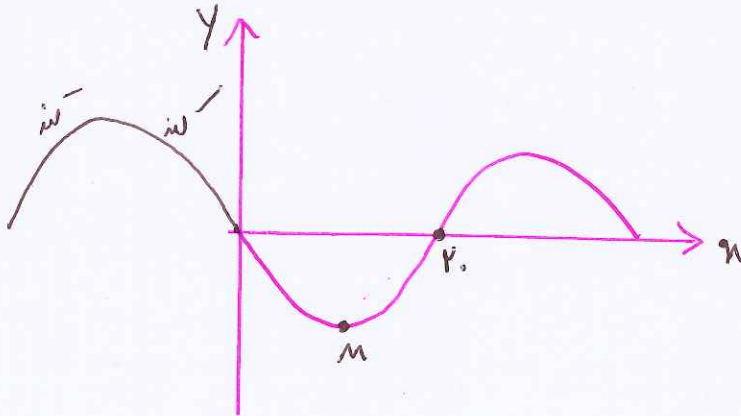
0915 2224222

علیه خاکی

$$f = \frac{v}{\lambda} = \frac{1}{\lambda} = \omega \rightarrow T = \frac{1}{\omega}$$

۲۱۳

$$\frac{\Delta t}{T} = \frac{1.20 - 1.20}{\frac{1}{\omega}} = 1.0 \rightarrow \frac{T}{1} \rightarrow \begin{cases} t_1 = \frac{\omega T}{\pi} \\ t_r = \frac{v T}{\pi} \end{cases}$$



۱.۲۰

$$d = \frac{q}{\cos \theta_r} = 11.2 \text{ cm}$$

$$d = \frac{q}{\cos \theta_r} = 12.14 \text{ cm}$$

$$\begin{aligned} n_1 \sin \theta_1 &= n_2 \sin \theta_2 \\ 1 \times \sin \theta_1 &= \frac{c}{v} \sin \theta_2 \end{aligned} \rightarrow \theta_r = 35^\circ$$

۲۱۴

$$\begin{aligned} n_1 \sin \theta_1 &= n_2 \sin \theta_2 \\ 1 \times \sin \theta_1 &= 1.414 \sin \theta_2 \end{aligned} \rightarrow \theta_r = 45^\circ$$

$$\Delta t_1 = \frac{d}{v} = \frac{d}{\frac{c}{n}} = \frac{11.2 \text{ cm} \times 1.414}{\frac{3 \times 10^8}{1.414}} = 1.0 \text{ ns}$$

۱.۲۰

$$\Delta t_r = \frac{d}{v} = \frac{d}{\frac{c}{n}} = \frac{12.14 \text{ cm} \times 1.414}{\frac{3 \times 10^8}{1.414}} = 1.414 \text{ ns}$$

۲۱۵

۱.۲۰

-۲۱۹

$$\frac{1}{\lambda} = R_H \left(\frac{1}{n_1^2} - \frac{1}{n_2^2} \right) \rightarrow \frac{1}{\lambda} = \frac{1}{100} \left(\frac{1}{9} - \frac{1}{n_2^2} \right) \rightarrow \frac{1}{100} = \frac{1}{100} \left(\frac{1}{9} - \frac{1}{n_2^2} \right)$$

$n = 4$

✓
نزدیک

-۲۲۰

$$E = \frac{hc}{\lambda} \rightarrow \lambda = \frac{hc}{E} = \frac{4143 \times 10^{-14} \times 3 \times 10^8}{114 \times 10^{-19} \times 5 \times 10^{-19}} = 3 \text{ m}$$

✓
نزدیک

-۲۲۱

$$V = Ed \rightarrow \frac{V_2}{V_1} = \frac{d_2}{d_1} \rightarrow \frac{\Delta V}{1} = \frac{1 \text{ cm}}{1 \text{ cm}} \rightarrow \Delta V = 0 \text{ V}$$

✓
نزدیک

-۲۲۲

$$\rightarrow E_1 = \frac{k q_1}{r^2}$$

$$\rightarrow E_2 = \frac{k q_1}{r^2}$$

$$\rightarrow E_2 = k E_1$$

✓
نزدیک

۲۳۲

خازن به باتری متصل است ← ولت

$$C = K \epsilon_0 \frac{A}{(d)_r} \rightarrow C \propto \frac{1}{r}$$

$$\frac{1}{r} (C) = \frac{q}{(V)_r} \Rightarrow \frac{1}{r} q$$

۲۳۴

$$I = \frac{\mathcal{E}}{R+r} = \frac{4}{4 \times 10^{-6} + r} = 10^{-6} A$$

$$I = \frac{q}{t} \rightarrow q = It = 10^{-6} \times 4 = 10^{-6} \times 4 \times 10^6 = 10^{-2} C$$

$$q = ne \rightarrow n = \frac{q}{e} = \frac{10^{-2}}{1.6 \times 10^{-19}} = 10^{17}$$

۲ زنی ✓

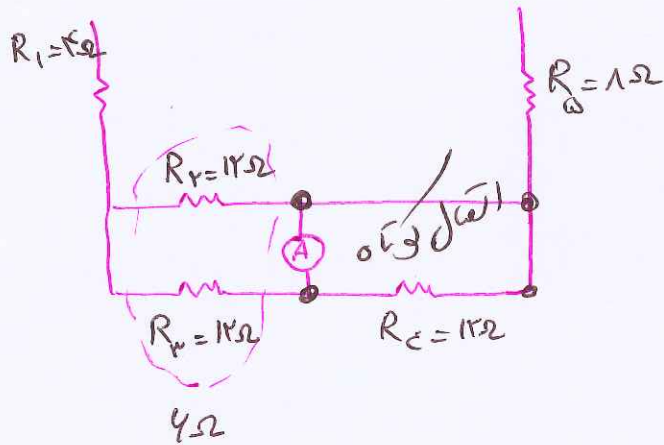
۲۳۵

$$V_1 = 1 \times 10 = 10 \text{ V} \rightarrow P_1 = 10 \times 10 = 100 \text{ W}$$

$$V_2 = 1.92 \times 10 = 19.2 \text{ V} \rightarrow P_2 = 19.2 \times 10 = 192 \text{ W}$$

$$P_2 - P_1 = 192 \text{ W}$$

۲۲۶

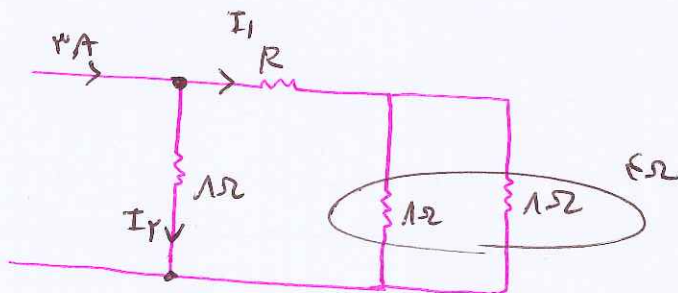


$$I = \frac{4}{1} = 4A$$

$$V = 4 \cdot 1 = 4V$$

نصف ۱

۲۲۷



$$I_1 + I_2 = 3 \rightarrow I_2 = 3 - I_1$$

$$I_1 R + \epsilon I_1 = 1 I_2 \rightarrow 1 I_1 + \epsilon I_1 = 1 I_2$$

$$2 I_2 = I_1 + 3$$

$$\rightarrow 2(3 - I_1) = I_1 + 3 \rightarrow I_1 = 1A$$

نصف ۴

۲۲۸

$$U = \frac{1}{2} L I^2 \rightarrow 1J = \frac{1}{2} \times 1 \times I^2 \rightarrow I = 2A$$

$$B = \mu_0 \frac{NI}{L} = 12 \times 10^{-6} \times \frac{100 \times 1}{1 \times 10^{-2}} = 12 \times 10^{-4} = 1.2 \text{ mT}$$

نصف ۱

۲۲۹

$$\mathcal{E} = -N \frac{\Delta \Phi}{\Delta t} = 100 \times \frac{10 \times 10^{-4} \times 1 \times 1}{1 \times 10^{-2}} = 10V$$

نصف ۱

در سطح هموار $\rightarrow E_1 = E_2 \rightarrow K_1 + U_1 = U_2$ ✓

$$\frac{1}{2} \times 2 \times (2)^2 + 2 \times 1 \times (2+L) = 44$$

$$4 + 4 + 2 \cdot L = 44 \rightarrow L = \frac{1}{2} m = 1. cm$$

✓
تجزیه

۲۳۱- ✓
تجزیه

۲۳۲- ✓
تجزیه

۲۳۳-

$$P = \rho gh + P_0 = 1250 \times 1 \times \frac{1}{\rho} + 12500 \times 1 \times 1/75$$

$$1102 = P + 1000 \times 1 \times h \rightarrow 1102 = 1000h \rightarrow h = 1.102 m = 110.2 cm$$

$$cm^3 \rightarrow u \times A = 20 \times 2. = 40 cm^3$$

-۲۳۴

$$\text{آهن} \rightarrow \frac{\lambda_0 D_1^2}{L_1}$$

$$m_s = \frac{E_0 \times \epsilon D_1^2}{2 L_1}$$

$$\frac{\frac{E_0 \times \epsilon D_1^2}{2 L_1}}{\frac{\lambda_0 D_1^2}{L_1}} = 1.$$

نسخه ۴

-۲۳۵

$$Q = 2. \times 1.15 = 21. \text{ kg}$$

$$Q_1 = m c \Delta \theta = \frac{1}{2} \times 21. \times 2. = 21 \text{ kg}$$

$$Q_2 = m L_f = \frac{1}{2} \times 224. \dots = 141 \text{ kg}$$

} → ۱۸۹ kg

تقریباً همافزایش شده است

$$21. - 189 = 21$$

$$21 \times 1. = \frac{1}{2} \times 42. \times \Delta \theta \rightarrow \Delta \theta = 1.^\circ \text{ C}$$