

پانچ سو دریں سبب سبب تہی نوب دوم

۱۴.۴ سہ ماہ

لکھنؤ ٹیچر ٹریننگ کالج
۵۹۴۶۹.۳۶۶۹۲

۲ (۴۶)

۳ (۴۷)

$$E = nhf = nh \frac{c}{\lambda}$$

$$\frac{E_{\lambda=400nm}}{E_{\lambda=800nm}} = \frac{400}{800} = 1, 50$$

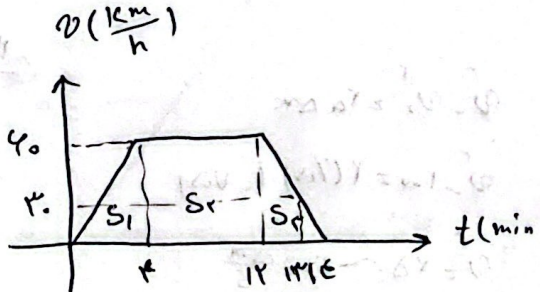
۱ (۴۸)

$$C = \frac{K \epsilon_0 A}{d}$$

$$C = \frac{q}{V}$$

کاپیٹنس کے ساتھ $k \rightarrow C$ نسبت

۲ (۴۹)



$$\frac{km}{h} \times \min = km$$

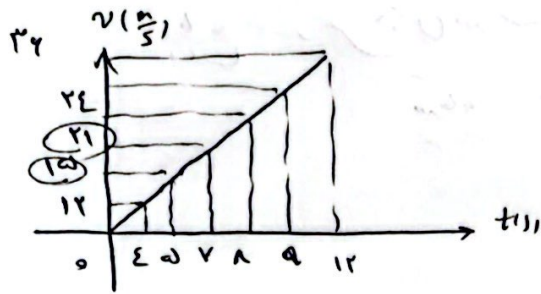
۲ (۵۰)

$$S_1 = \frac{1}{2} \times 40 \times 12 = 240$$

$$\sum S = \frac{420}{40} = 10, 50$$

$$S_2 = 40 \times 12 = 480$$

$$S_3 = \frac{30 + 40}{2} \times 12 = 450$$



$\underline{r}(\omega)$

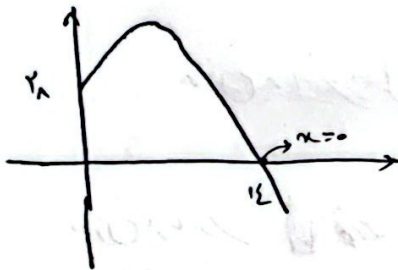
$$S = \Delta x = l = 112$$

$$\frac{1}{2} \times 12 \times 10 = 112$$

$$\left\{ \begin{array}{l} v = \frac{r \omega}{r} \rightarrow a = \frac{r \omega}{r} \\ v = 0 \end{array} \right.$$

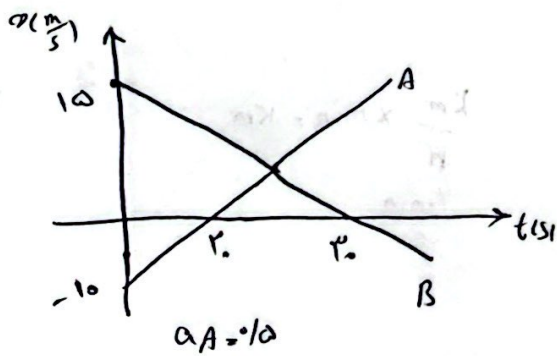
$$\therefore S = 112 = \frac{12 + 27}{2} \times 10$$

$$\frac{t}{\Delta S \rightarrow v_s}$$



$\underline{r}(\omega)$

$$\bar{v} = \frac{\Delta x}{\Delta t} = \frac{0 - 12}{12} = -\frac{r_m}{s}$$



$\underline{r}(\omega)$

$$v - v_0 = r \alpha \Delta t$$

$$v - 10 = r(\alpha) (-10)$$

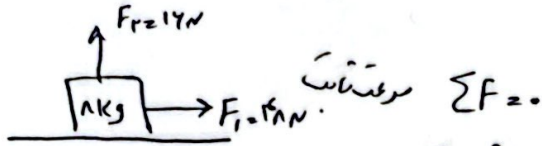
$$v = 10 \sim v = \frac{\omega r}{s}$$

$$a_A = \frac{\Delta v}{\Delta t} = \frac{10 - (-10)}{\Delta t}$$

$$\Delta t = 10s$$

$$S_B = \Delta x_B = \frac{1}{2} \times 10 \times 10 = 100m \rightarrow x_B = 100 + 100 = 200m$$

$$100 - (-100) = 200m$$



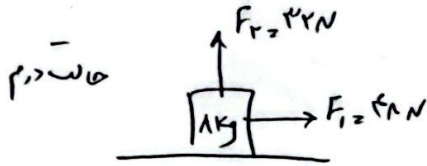
موفقیت $\Sigma F = 0$

$$F - P_k = 0 \rightarrow P_k = f_k N \rightarrow \mu_k F_N = 8$$

$$F_N = 4 \text{ N}$$

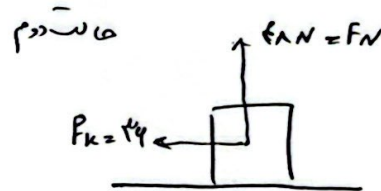
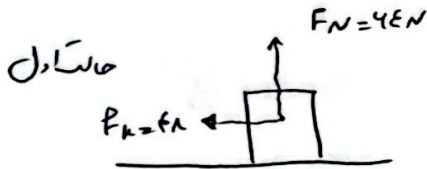
$$\mu_k (10 - 12) = f_k \rightarrow \mu_k = \frac{f_k}{12} = \frac{8}{12} = \frac{2}{3}$$

۱ (د)

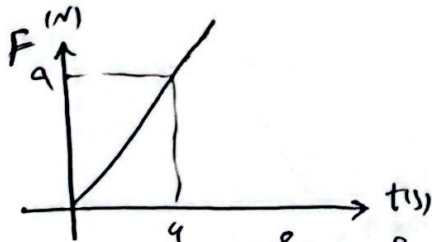


$$\begin{cases} F_N = 10 - 22 = 4 \text{ N} \rightarrow F_i > P_k \\ P_k = \mu_k F_N = \frac{2}{3} \times 4 = 2.67 \text{ N} \end{cases}$$

$$R = \sqrt{F_N^2 + P_k^2}$$



موفقیت $\frac{F_N}{P_k} =$ چون مثبت



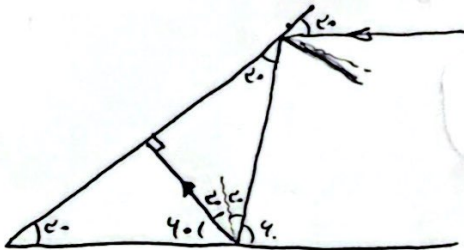
$$f = \mu F_N = 0.2 \times (mg) = 0.2 \times 20 = 4 \text{ N} \quad 1 (د)$$

فازش F به 4 N نرسد $F = f$ ، زیاد شود $F > f$ ← هم شروع به حرکت می کند و f ثابت می ماند

$$\frac{W}{W} = \frac{mg}{mg} = \frac{g}{g}$$

۲ (۵۶)

$$g = \frac{Gm_e}{r^2} \sim \frac{g}{g} = \frac{m}{m} \times \left(\frac{r}{r} \right)^2 = \frac{r}{1} \times \left(\frac{1}{r} \right)^2 = \frac{1}{r}$$



عبارت زیر را بنویسید

مقدار آن را بنویسید

۱۴ (۵۷)

$$m = 2 \text{ kg}$$

$$E = U + K$$

$$K = 200 \frac{\text{J}}{\text{m}}$$

$$U = E - K$$

$$A = 1 \times 10^{-2}$$

$$E = \frac{1}{2} m \omega^2 A^2 = \frac{1}{2} K A^2 = \frac{1}{2} \times 200 \times 4 \times 10^{-4} = 0.04 \text{ J}$$

$$v = 1 \frac{\text{m}}{\text{s}}$$

$$K = \frac{1}{2} m v^2 = \frac{1}{2} \times 2 \times 1^2 = 1 \text{ J}$$

$$\rightarrow U = 0.04 - 1 = -0.96 \text{ J}$$

۴ (۵۹)

$$A = 1 \times 10^{-2}$$

$$v_{\text{max}} = 1 \text{ m/s}$$

$$v_{\text{max}} = A \omega \rightarrow \omega = \frac{v_{\text{max}}}{A} = \frac{1}{1 \times 10^{-2}} = 100 \text{ rad/s}$$

$$\frac{1}{10} \times 10^2 = \frac{1}{100 T} \rightarrow T = 10^{-2} = 0.01 \text{ s}$$

$$v = \sqrt{\frac{F}{\mu}} \quad \lambda = \frac{v}{f} = \frac{v}{T}$$

۳ (۶۰)

$$E = nhf = nh \frac{c}{\lambda} = p \lambda \rightarrow n = \frac{p \lambda}{h c} = \frac{44 \times 10^{-9} \times 40 \times 10^{-9}}{44 \times 10^{-9} \times 3 \times 10^8} = 1.2 \times 10^{-2}$$

$$n = \frac{44 \times 10^{-9}}{3 \times 10^{-8}} = 1.2 \times 10^{-2}$$

۲ (۶۱)

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

1 (72)

نقدین قدره: $\left\{ \begin{array}{l} n_1 = 2 \\ n_2 = 7 \end{array} \right.$

$$\frac{1}{\lambda} = R_H \left(\frac{1}{2^2} - \frac{1}{7^2} \right)$$

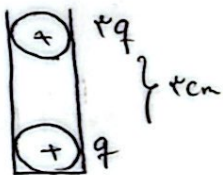
$$\frac{1}{\lambda} = R_H \left(\frac{11}{4 \times 49} \right) \rightarrow \lambda = \frac{4 \times 49}{11 R_H}$$

نقدین قدره: $\left\{ \begin{array}{l} n_1 = 2 \\ n_2 = \infty \end{array} \right.$

$$\frac{1}{\lambda} = R_H \left(\frac{1}{2^2} - \frac{1}{\infty} \right)$$

$$\lambda = \frac{4}{R_H}$$

$$\frac{\lambda_{max}}{\lambda_{min}} = \frac{4}{11}$$



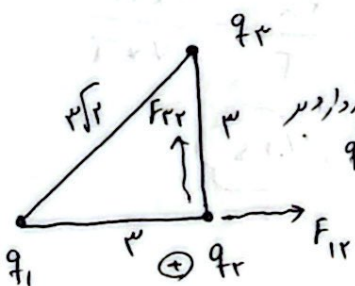
$$F = mg \quad , \quad m = \rho \cdot \mu \cdot r = 10 \times 10^{-3} \text{ kg} = 10^{-2} \text{ kg} \quad (72)$$

$$\frac{q \times 10^{-9} \times q}{4 \times 10^{-2}} = 10^{-2} \rightarrow q \times 10^{-11} = 4 \times 10^{-9}$$

$$q^2 = 4 \times 10^{-11}$$

$$q = 2 \times 10^{-6} = n e$$

$$n = \frac{2 \times 10^{-6}}{1.6 \times 10^{-19}} = 1.25 \times 10^{13}$$



$$F_T = 1 \times 10^{-3} \text{ N}$$

$$\frac{q_1}{q_2} < 1 \leftarrow q_2 < q_1 \rightarrow F_T \text{ ...}$$

$$F_{12} = \frac{q_1 \times q_2}{a} = \frac{1 \times 10^{-9}}{1} = 1 \times 10^{-9} \text{ N}$$

$$F_{13} = \frac{q_1 \times q_3}{a} = \frac{1 \times 10^{-9}}{1} = 1 \times 10^{-9} \text{ N}$$

$$\frac{q_1}{q_2} = -\frac{1}{2}$$

1 (73)

$$\frac{R_A}{R_B} = 1$$

$$\frac{L_A}{L_B} = 1$$

$$\frac{P_A}{P_B} = 2$$

$$\frac{P_A}{P_B} = 2$$

$$\frac{R_A}{R_B} = \frac{P_A}{P_B} \times \frac{L_A}{L_B} \times \frac{A_B}{A_A}$$

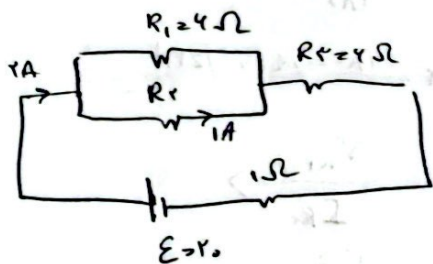
$$1 = 2 \times 1 \times \frac{A_B}{A_A}$$

$$\frac{A_A}{A_B} = 2$$

$$\frac{m_A}{m_B} = \frac{P_A}{P_B} \times \frac{V_A}{V_B} = \frac{P_A}{P_B} \times \frac{A_A}{A_B} \times \frac{L_A}{L_B} = 2$$

۲ (۶۵)

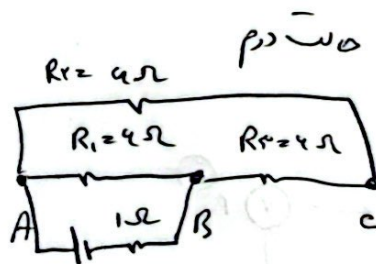
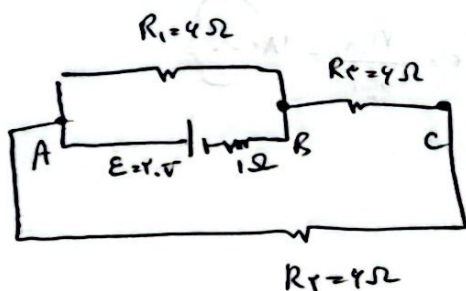
۲ (۶۶)



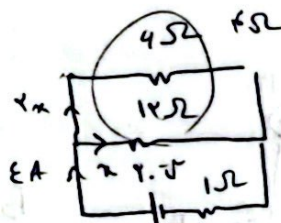
$$R_{eq} = 4\Omega \rightarrow R_T = 4\Omega$$

$$I = \frac{2}{4+1} = 2A$$

$$P_{R_2} = R_2 I^2 = 4 \times (1)^2 = 4W$$



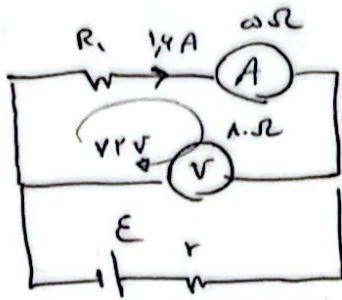
$$I_A = EA \rightarrow I = \frac{E}{R} A$$



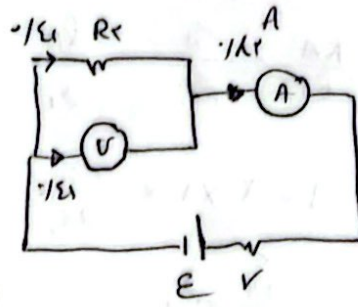
$$I = \frac{2}{4+1} = 2A$$

$$P_{R_2} = R_2 \left(\frac{E}{R} \right)^2 = 4 \times \frac{16}{9} = \frac{64}{9} W$$

$$\frac{64}{9} - 4 = \frac{16}{9} W$$



(الف)



(ب)

$$V_2 = (1.4 \times 1) + V_{R_1}$$

$$V_{R_1} = V_2 - 1.4 = 7.6$$

$$R_1 = \frac{7.6}{1.4} = 5.4 \Omega$$

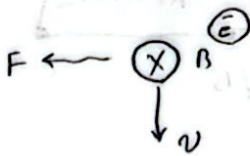
$$I_{(V)} = \frac{V_2 - 1.4}{1.0} = 1.4 A$$

$$I_{R_2} = 1.4 - 1.0 = 0.4 A$$

$$R_2 = \frac{V_{R_2}}{I_{R_2}} = \frac{7.6}{0.4} = 19 \Omega$$

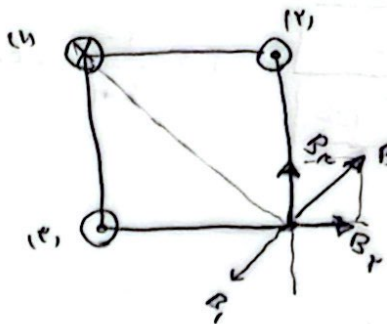
$$R_2 = \frac{V_{(V)}}{I_{R_2}}$$

$$R_2 = \frac{7.6}{0.4} = 19 \Omega$$



فرض حقیقت

(7a)



$$B = \frac{F}{I \cdot l}$$

چون فاصلہ کم (1) آفہ 0 ہے

$$B_1 < B' \rightarrow B_T$$

$$\mathcal{E} = -\frac{N}{R} \frac{\Delta \Phi}{\Delta t} = -\frac{N}{R} \frac{\Delta B A}{\Delta t} = \frac{-200}{20} \frac{-0.01 \times 0.01}{2 \times 10^{-3}} = 1.0 V$$

$$I = \frac{\mathcal{E}}{R} = \frac{1.0}{10} = 0.1 A$$

1

$$m = \rho V$$

1 (V1)

$$\rho V = \frac{4}{3} \pi (1a^3 - a^3) = \frac{4}{3} \pi \times 1a^3 \text{ cm}^3$$

$$m = \rho \cdot g r$$

$$\rho = \frac{r_0}{\sqrt{\pi}}$$

$$m = \rho V \Rightarrow r_0 = \frac{r_0}{\sqrt{\pi}} \times \frac{4}{3} \pi \times 1a^3$$

$a^3 = 1 \rightarrow a = 1$

$$P_A = P_B$$

1 (V2)

$$P_0 + \rho_1 g h_1 = P_0 + \rho_2 g h_2$$

$$P_0 + \rho_2 g h_2 - P_0 = \rho_2 g h_2 - \rho_1 g h_1 = 1000 \times 10 \times 1 \times 1 - 1200 \times 10 \times 1 \times 1$$

$$10000 \times 1 - 12000 \times 1 = -2000 \text{ Pa}$$

$$h_{\text{cm}} + u_j = \frac{\Delta \Sigma \Sigma}{1000} = -1/2 \text{ cm } u_j = -1 \text{ mm} - 4g$$

$$W_f = \frac{1}{2} m (v_f^2 - v_i^2) = \frac{1}{2} \times 10 (20^2 - 0^2) = 10 (400 - 0) = 4000 \text{ J}$$

$= 4 \text{ kJ}$

1 (V3)

$$v_f^2 - v_i^2 = 2gh \rightarrow 120^2 - 100^2 = 20(h)$$

1 (V4)

$$1200 - 1000 = 20h \Rightarrow 200 = 20h$$

$$h = 10 \text{ m}$$

$$Q = Pt$$

1 (V5)

$$mLv = Pt \rightarrow t = \frac{Ex 2204 \times 10}{2 \times 10^3} = \frac{4408}{2} = 2204 \text{ s} = 36.7 \text{ min}$$

مستند

09379-37592