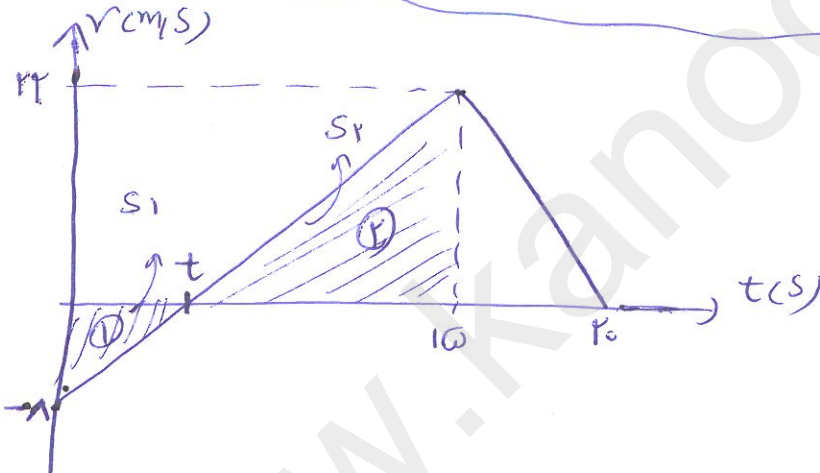


(14) ~ (152)

رابطے سے متعلقہ : $\Delta x = \frac{v + v_0}{2} \Delta t \rightarrow -122.5 = \left(\frac{v}{2}\right) (\omega)$

$\rightarrow v = -49 \text{ m/s}$

$\rightarrow |v| = 49 \text{ m/s}$

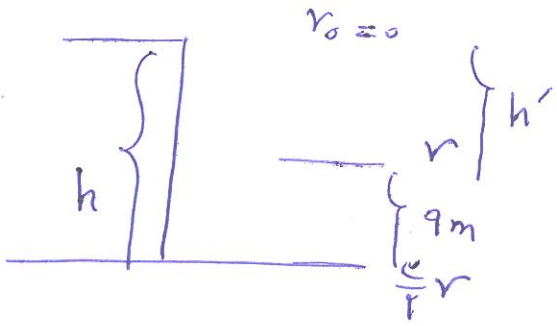


(14) ~ (157)

سب سے زیادہ : $\frac{22}{1} = \frac{16 - t}{t} \rightarrow t = 4(s)$

$L = s_1 + s_2 = \left(\frac{1}{2}\right) (4) (1) + \left(\frac{1}{2}\right) (16) (22) = 192 \text{ m}$

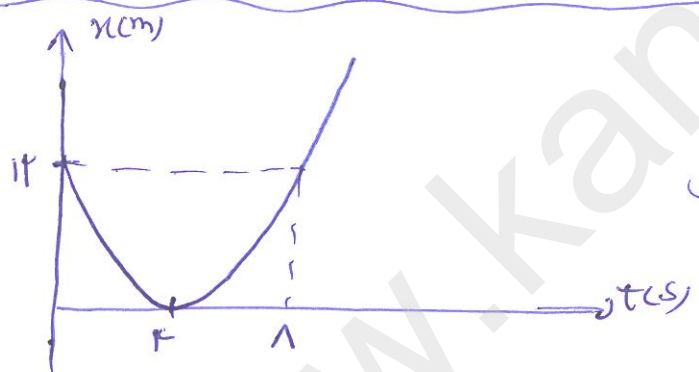
1



مقتل از زمانه: $(\frac{r}{2})^2 - r^2 = r_0(9) \rightarrow r = 12 \text{ m/s}$

$v^2 - v_0^2 = 2g h' \rightarrow (12)^2 = 2 \cdot h' \rightarrow h' = 36 \text{ m}$

$\rightarrow h = 9 + 36 = 45 \text{ m}$



2

سوال اول: $\Delta x = \frac{v+v_0}{2} \Delta t$

\downarrow
 $-12 = \frac{v_0}{2}(4) \rightarrow v_0 = -4 \text{ m/s}$

\downarrow
 اتقارنه بهرهم
 $v = 4 \text{ m/s} \leftarrow t = 4 \text{ s}$

سوال دوم:

$x = \frac{1}{2} a t^2 + v_0 t + x_0$

$t = 2 \text{ s} \left\{ \begin{array}{l} x = 0 \rightarrow 0 = \frac{1}{2} a (4) + 4 v_0 + 12 \rightarrow 2a + v_0 = -6 \quad (1) \\ v = 0 \rightarrow v = a t + v_0 \end{array} \right. \quad (2)$

$(1) \text{ و } (2) \rightarrow a = \frac{6}{2} \text{ m/s}^2 \quad \text{و} \quad v_0 = -4 \text{ m/s}$

$t = 4 \text{ s} \rightarrow v = 4 \text{ m/s} \rightarrow$ با تقارنه بهرهم
 سرانگنه با سرانگنه جوار رينه

$$R = \frac{r v_{0x} v_{0y}}{g} = \frac{(r)(c \cdot 10^3)(c \cdot 10^3)}{10} = \underline{110 \text{ m}}$$

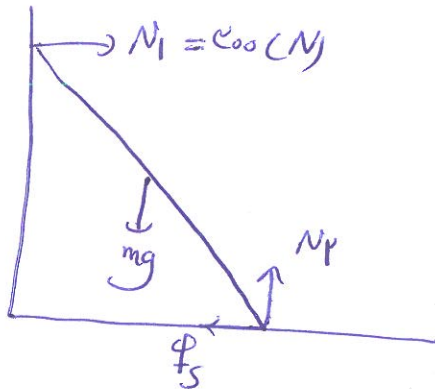
(14) (140)

مقصد کے بارے میں: $w_T = \Delta K = w \Phi_K = -\Phi_K d$ $v_0 = 10 \text{ m/s}$ (141)

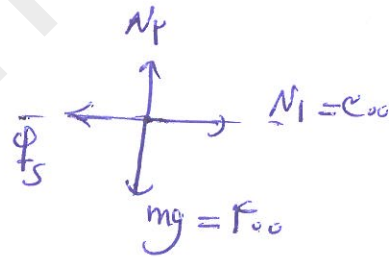
$$\Rightarrow -\Phi_K (r) = \left(\frac{1}{r}\right) (r \times 10^3) (0 - 10^2)$$

$$\Rightarrow \underline{\Phi_K = 10000 \text{ (N)}}$$

(14)



(14) (141)



$$\Phi_s = N_1 = 1000 \text{ (N)}$$

$$N_p = mg = F_{00} \text{ (N)}$$

$$\Rightarrow R = \sqrt{N_p^2 + \Phi_s^2} = \underline{1000 \text{ (N)}}$$

v

(14)

$$F = ma = mg'$$

(13) (14c)

$$\frac{g'}{g} = \left(\frac{r}{r'}\right)^2 = \left(\frac{4400}{10000}\right)^2 = 0.194$$

$$\rightarrow g' = 0.194 \text{ m/s}^2 \quad \rightarrow F = (1000)(0.194) = 194 \text{ (N)}$$

$$N = m(g + a)$$

تند رفتہ بہ بالا
یا تند رفتہ بہ اسفل

(14c)

$$\Downarrow$$

$$N > mg$$

$$f_{s, \text{max}} = \mu_s N = \mu_s mg = \left(\frac{4}{10}\right)(10) = 4 \text{ (N)}$$

(14a)

$$F > f_{s, \text{max}} \quad \rightarrow \text{رہے نہیں} \quad \rightarrow f_k = \mu_k N = 10 \text{ (N)}$$

$$a = \frac{F - f_k}{m} = 10 \text{ m/s}^2 \quad v = at + v_0 \quad \rightarrow \quad v = 10 \text{ m/s}$$

$$\sum F = 0$$

یہ ازگاہوں پر

$$\Downarrow$$

$$a = 0$$

$$\rightarrow$$

$$v = \sqrt{10} \text{ m/s}$$

(14)

$$W_{mg} = +mgh$$

(144)



(1)

$$W_i = W_f = W_c$$

$$k = \frac{P_r}{P_m} \rightarrow \frac{k_r}{k_i} = \left(\frac{P_r}{P_i}\right)^P = \left(\frac{P_r}{P_o}\right)^P = 1/1$$

(145)

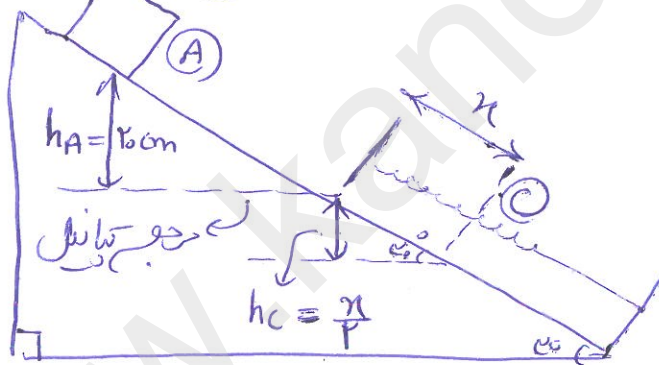
(2)



$$\% \frac{\Delta k}{k_i} \times 100 = + 11\%$$

$m = 2 \text{ kg}$ و $v_A = 2 \text{ m/s}$

(148)



(2)

$$E_A = E_C \rightarrow k_A + U_A = k_C + U_C$$

$$\rightarrow \left(\frac{1}{2}\right)(2)(2) + (2)(10)\left(\frac{1}{10}\right) = 10 + \left(\frac{1}{2}\right)(2)\left(\frac{-x}{P}\right)$$

$$\rightarrow x = 9 \text{ m} = 90 \text{ cm}$$

@

$$v = \frac{c}{n} \rightarrow \frac{v_r}{v_i} = \frac{n_i}{n_r}$$

$$\frac{n_r}{n_i} = \frac{v_i}{v_r} = ?$$

(179) P

$$\frac{v_r}{v_i} = \frac{c}{f} \quad (1)$$

$$\frac{v_r}{v_i} = \frac{v_r}{\omega} = \frac{v}{\omega} \quad (2)$$

قانون Snell: $n_i \sin \alpha = n_r \sin \alpha$
 n_i و n_r

$$\downarrow$$

$$\frac{n_i}{n_r} = \frac{v_r}{v_i} = \frac{v}{\lambda} \quad (3)$$

(1) و (2) و (3)

$$\frac{v_i}{v_r} = \frac{n_r}{n_i} = \frac{\omega}{\lambda}$$

(180)

اگر سبز از قرمز بیشتر است و هر چه با بزرگتر خط عبور نزدیک تر شود

(1)

$$v = \sqrt{\frac{F}{\mu}} = \sqrt{\frac{10}{2 \times 10^{-1}}} = 20 \text{ m/s}$$

(181) P

$$\frac{c}{f} \lambda = 10 \text{ cm}$$

$$\rightarrow \lambda = \frac{1}{10} \text{ m}$$

$$\lambda = T v \rightarrow T = \frac{1}{200} \text{ s}$$

$$\frac{1}{100} = \frac{1}{200} \quad (2)$$


دوره مورد نیاز است

است دوره (FA) برابر است

$$L = \lambda A = 14 \text{ cm}$$


(2)

$$v = \sqrt{\frac{F}{\mu}} = \sqrt{\frac{r\omega_0}{\rho_{\text{Al}} \cdot c}} = \underline{r\omega_0 \text{ m/s}}$$

(144)


$$\lambda = \frac{v}{f} = \frac{r\omega_0}{c/r_1 \cdot \omega} = \underline{r\lambda \text{ m}}$$

$$T = 2\pi \sqrt{\frac{L}{g}} \rightarrow \frac{T}{2\pi} = \sqrt{\frac{L_r}{L_1}}$$

(145)


↓

$$\frac{1}{F} = \frac{L_r}{L_0} \rightarrow L_r = r_0 \text{ cm}$$

↓
 $\Delta L = 9\% \text{ cm}$
 3% ب

$$k = u \rightarrow t = \frac{T}{\lambda} \xrightarrow{v = v_m \text{ (oscute)}} r = \frac{\sqrt{P}}{f} v_m = \underline{\frac{\sqrt{P}}{f} A \omega}$$

(146)

$$E = \frac{1}{2} m v_m^2 \rightarrow \lambda \times 10^6 = (\omega \times 10^{-7}) v_m^2$$

(147)


$$\downarrow$$

$$v_m = \frac{r}{\omega} \text{ m/s}$$

$$\rightarrow r = \frac{\sqrt{P}}{f} v_m = \underline{\frac{\sqrt{P}}{\omega} \text{ m/s}}$$

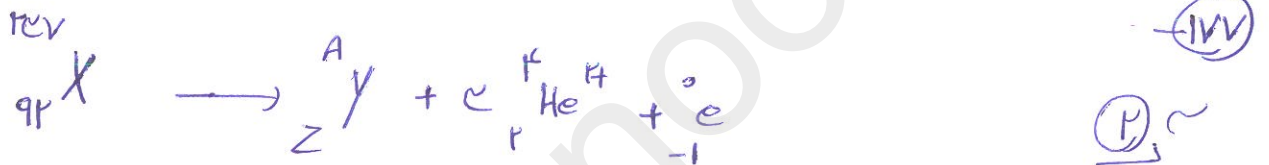
(148)


$$E = pt = \frac{nhc}{\lambda} \rightarrow n = \frac{pt\lambda}{hc} \quad (175)$$

$$\rightarrow \frac{n_{\text{زر}}}{n_{\text{نقد}}} = \frac{P_{\text{زر}}}{P_{\text{نقد}}} \times \frac{t_{\text{زر}}}{t_{\text{نقد}}} \times \frac{\lambda_{\text{نقد}}}{\lambda_{\text{زر}}} = \frac{c}{\lambda}$$

$$m_0 = h\nu_0 = \frac{hc}{\lambda_0} \quad (176)$$

$$\rightarrow \lambda_0 = \frac{(f_{\text{H}}/f_{\text{H}} - 1\omega) (c \times 10^8)}{f_{\text{H}} \omega} = c_{00} \text{ nm}$$



$$\rightarrow \text{rev} = A + 1r \Rightarrow A = 2r\omega$$

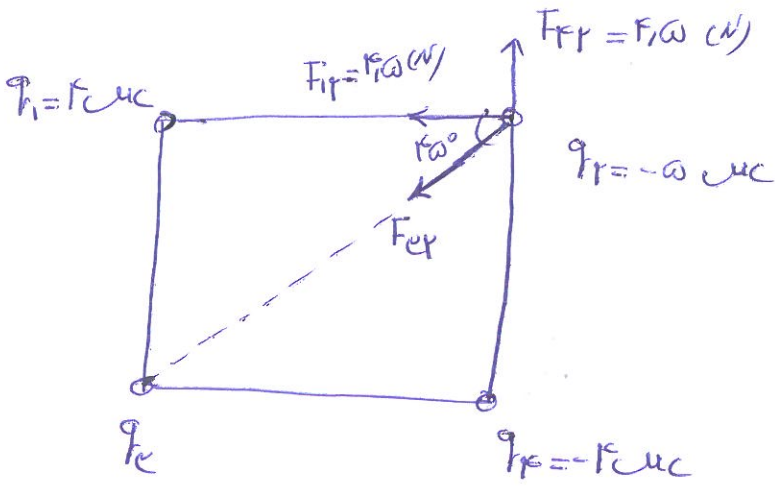
$$N = \frac{N_0}{rn} \quad N' = N_0 \left(1 - \frac{1}{rn}\right) \quad ; \quad n = \frac{t}{T_{\text{Hr}}}$$

$$\frac{1}{r} N_0 = \frac{N_0}{rn} \rightarrow n = \omega \Rightarrow T_{\text{Hr}} = \frac{1\omega}{\omega} = r\omega \text{ روز}$$

$$\Delta u = q \Delta v \rightarrow -\omega \times 10^{-e} = -\omega \times 10^{-\omega} (V_B - 11\omega) \quad (179)$$

$$\rightarrow V_B = 2r_0 (V)$$

(1)



(10) (110)

$$F = \frac{q_1 q_2}{r^2}$$

cm سے بجب

$$F_{1r} = F_{2r} = \frac{(q)(q)}{r^2} = F \cos(45^\circ)$$

↓
بائیں ⊕ بائیں ⊖

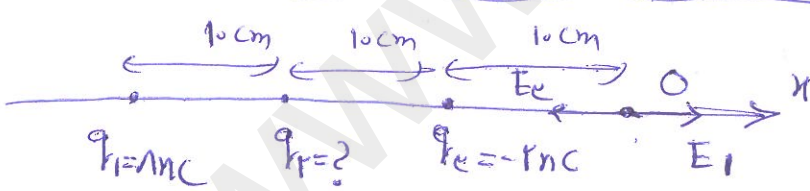
$$F_{1r} \sin(45^\circ) = F \cos(45^\circ) \quad \text{و} \quad F_{2r} \cos(45^\circ) = F \cos(45^\circ)$$

$$\downarrow$$

$$q_2 = \sqrt{2} q$$

$$F = \frac{k |q_1| |q_2|}{r^2} \quad \rightarrow \quad \frac{F_r}{F} = \cos(45^\circ) \times \left(\frac{1}{\sqrt{2}}\right)^2 = 1$$

(11) (111)



(12) (112)

$$E = \frac{k|q|}{r^2}$$

$$E = \frac{(q)(q) \cos(45^\circ)}{q^2 k^{-1}} = 100 \text{ N/C}$$

$$E_c = 100 \text{ N/C}$$

$$E_c = 100 \text{ N/C}$$

↓
بائیں ⊕ بائیں ⊖
← $E_p = 900 \text{ N/C}$ و $q_2 = +nC$

(13)

$$\frac{V_1}{V_2} = \left(\frac{r_1}{r_2}\right)^2 = \left(\frac{10}{5}\right)^2 = \frac{4}{1}$$

(113)

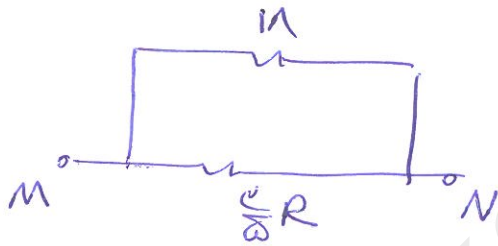
9



(114)

$$q_1 = q_2 \implies \frac{V_1}{V_2} = \frac{C_2}{C_1} = 4$$

9



(115)

9

$$\frac{R}{1} = \frac{(1A)(\frac{1}{\infty}R)}{1A + \frac{1}{\infty}R} \implies R = 4\sqrt{R}$$

(116)

$$\frac{1}{R_A} = \frac{1}{C} \implies R_A = \frac{C}{1}$$

$$\implies \frac{R_B}{R_A} = \frac{1}{9}$$

$$\frac{1}{R_B} = \frac{1}{C} \implies R_B = \frac{C}{9}$$

1

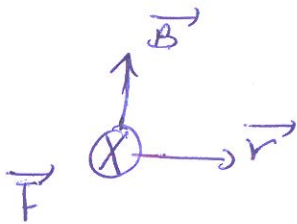
$$v = \omega r$$

(117) ✓

$$A = \pi R^2 \rightarrow 4\pi r \times 10^{-7} = \pi R^2 \rightarrow R = 4r \times 10^{-7} \text{ m} \quad (118)$$

$$B = \frac{\mu_0 NI}{rR} = \frac{(4\pi \times 10^{-7}) (\omega r) (4r)}{r(4r \times 10^{-7})} = 10^{-6} \pi T$$

(119) ✓



(119)

✓

$$|\vec{E}| = N \left| \frac{\Delta\phi}{\Delta t} \right| \quad (120)$$

$$\phi_1 = 0 \rightarrow |\vec{E}| = (4r) (4r \times 10^{-6}) (\omega) = 16r^2 \omega$$

$$\phi_2 = -4r \times 10^{-6} \omega b = \underline{4r \omega b}$$

(120) ✓

$$\epsilon = B L v \rightarrow 10 \times 10^{-6} = (4r \times 10^{-6}) \left(\frac{1}{r} \right) v$$

$$\rightarrow v = \omega m/s$$

(121)

✓

پہلے کاغذ کے چارے چارے ان (N) سے (M) سے

(122)

$$P_{\text{man}} = \rho g h_{\text{man}} = (\rho \times 10^3) (10) (\rho \times 10^3) \\ = \underline{F \times 10^6 \rho g}$$

(191)

(192)

$$v_1 = v_2 \rightarrow \frac{P_1}{T_1} = \frac{P_2}{T_2}$$

(193)

(194)

$$\rightarrow \frac{v \omega}{c_{\text{so}}} = \frac{P_2}{c_{\text{so}}} \rightarrow P_2 = v_2 \omega c_m$$

$v_1 \omega c_m$ باہر صیوانتاً نون

$$H_1 = H_2 \rightarrow \frac{k_1 A_1 \Delta \theta_1}{L_1} = \frac{k_2 A_2 \Delta \theta_2}{L_2}$$

(194)

$$\rightarrow \frac{100 - 50}{L_1} = \frac{50 - 0}{L - L_1}$$

$$\rightarrow \underline{\frac{L_1}{L} = 0.17}$$

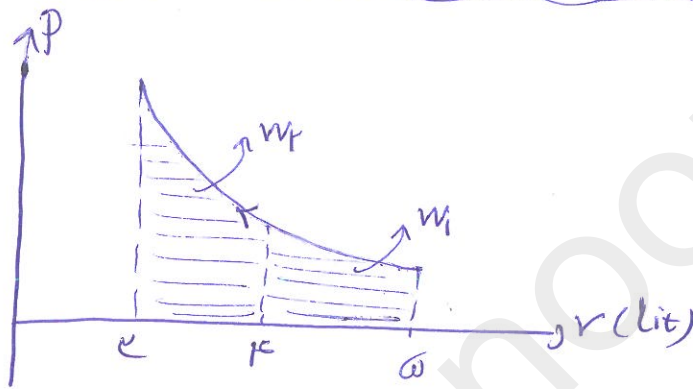
(195)

(196)

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2} \rightarrow \frac{V_2}{V_1} = \frac{T_2}{T_1} \times \frac{P_1}{P_2} \quad (190)$$

$$\rightarrow \frac{V_2}{V_1} = \frac{\epsilon_{00}}{\epsilon_{10}} \times \frac{1/1 \times 10^0}{10^0} = \frac{2V}{1F} \quad (191)$$

$$\rightarrow V_2 = 21V \text{ cm}^3 \rightarrow \Delta V = 1, \epsilon \text{ cm}^3$$



$$w_2 > w_1 \quad \xrightarrow[\Delta U = W]{Q=0} \quad \Delta U_2 > \Delta U_1$$

$$|Q_H| = Q_C + W \quad (192)$$

$$|Q_H| = \frac{Q}{F} Q_C \quad \rightarrow \quad W = \frac{1}{F} Q_C$$

$$\rightarrow K = \frac{Q_C}{W} = F \quad (193)$$

$$T_b = T_c \longrightarrow u_b = u_c \longrightarrow P_b v_b = P_c v_c \quad (19A)$$

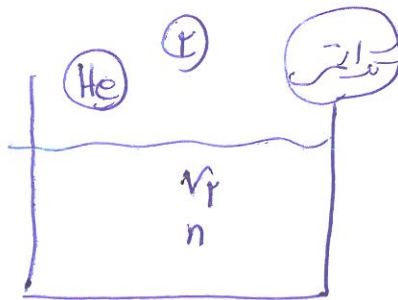
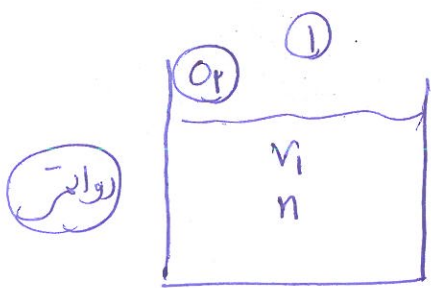
$$\longrightarrow u_c - u_a = u_b - u_a = \frac{c}{\gamma} p \Delta v \quad P_b = 114 \times 10^6 \text{ Pa}$$

↓

$$\Delta u_{ca} = \Delta u_{ba} = \left(\frac{c}{\gamma}\right) (114 \times 10^6) (2 \times 10^{-6})$$

$$= 720 \text{ J}$$

(2)



$$v_1 = v_2$$

$$\Delta u = Q + W$$

$$\Delta v = 0 \longrightarrow \Delta u = Q$$

$$\Delta u = \frac{c}{\gamma} n R \Delta T_{O_2} = Q$$

$$\Delta u = \frac{c}{\gamma} n R \Delta T_{He} = Q$$

$$\frac{\Delta u_{He}}{\Delta u_{O_2}} = \frac{Q_{He}}{Q_{O_2}} = 1 = m$$

$$\Delta T_{O_2} < \Delta T_{He} \longrightarrow \underline{k > 1}$$

(1)

$$m = \frac{p}{p + \phi} = \frac{1}{\gamma} \implies p = \phi$$

$$q = \frac{\phi}{\gamma}$$

$$d = p - q = \frac{\phi}{\gamma}$$

(14)

رہے
عمر کے لئے

(1)

(200)