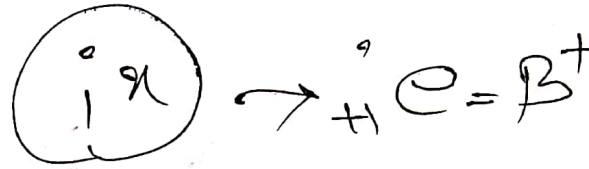
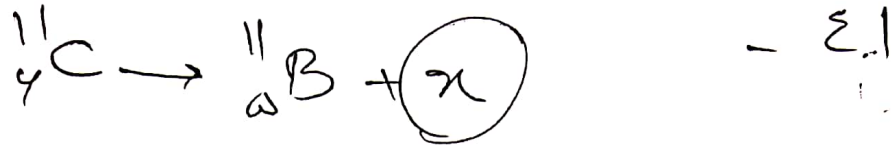


استاذنا → almasian.physics

استاذنا الجليل

شماره تماس → ۰۹۱۲۰۷۷۹۷۲۲

باسم شرف سوالات نوبت نهم ریاضی ۱۴۰۲



فرزند

$$h_1 = 0, h_2 = 25 \text{ m} \quad \frac{k_2}{k_1} = \frac{1}{2} \quad - \text{ع ۲}$$

$$E_1 = E_2 \Rightarrow k_1 + \frac{1}{2}k_1 = \frac{1}{2}k_2 + U_2 \Rightarrow \frac{3}{2}k_1 = mgh_2$$

$$\frac{3}{2} \times \frac{1}{2} \times m \times v_1^2 = m \times 1 \times 25 \Rightarrow v_1^2 = 12.5 \times 2 = 25$$

$$E_1' = E_2' \Rightarrow k_1 + \frac{1}{2}k_1 = \frac{1}{2}k_2 + U_2 \Rightarrow \frac{3}{2}m \times 25 = m \times 1 \times h$$

$$h = 12.5 \text{ m}$$

فرزند

$$L_1 = 900 \text{ m} \quad \theta_1 \quad \Delta \theta = ?$$

$$L_2 = 900.9 \text{ m} \quad \theta_2$$

- ۲۳

$$\alpha = 1.25 \times 10^{-5}$$

$$\Delta L = L_1 \alpha \Delta \theta$$

$$9.9 = 900 \times 1.25 \times 10^{-5} \times \Delta \theta$$

$$\Delta \theta = \frac{9.9}{1.125 \times 10^{-2}} = \frac{10000}{125}$$

$$\Delta \theta = 80 \text{ }^\circ \text{C} \quad \text{گزینه ۲}$$

کار روی گاز مثبت \leftarrow تراکم

انرژی درونی کاهش $\leftarrow \Delta U < 0$

$$\Delta U = W \leftarrow \text{بی در رو}$$

همه \leftarrow تراکم

گزینه ۱

- ۲۴

A: a , $v_A = 0$

B: $a + \frac{1}{f}$, $v_B = 0$
 انحراف

ت = 4 s
 t_B = 7 s

$\Delta h_A = \Delta h_B \Rightarrow$

$\frac{1}{f} a t^2 = \frac{1}{f} (a + \frac{1}{f}) t^2 \Rightarrow \frac{1}{f} a t^2 = \frac{1}{f} (a + \frac{1}{f}) (t - \tau)^2$

$11a = (\frac{a}{f} + \frac{1}{f}) \times 19 \Rightarrow 11a = 11a + 19$

$10a = 19 \rightarrow a = 1.9$

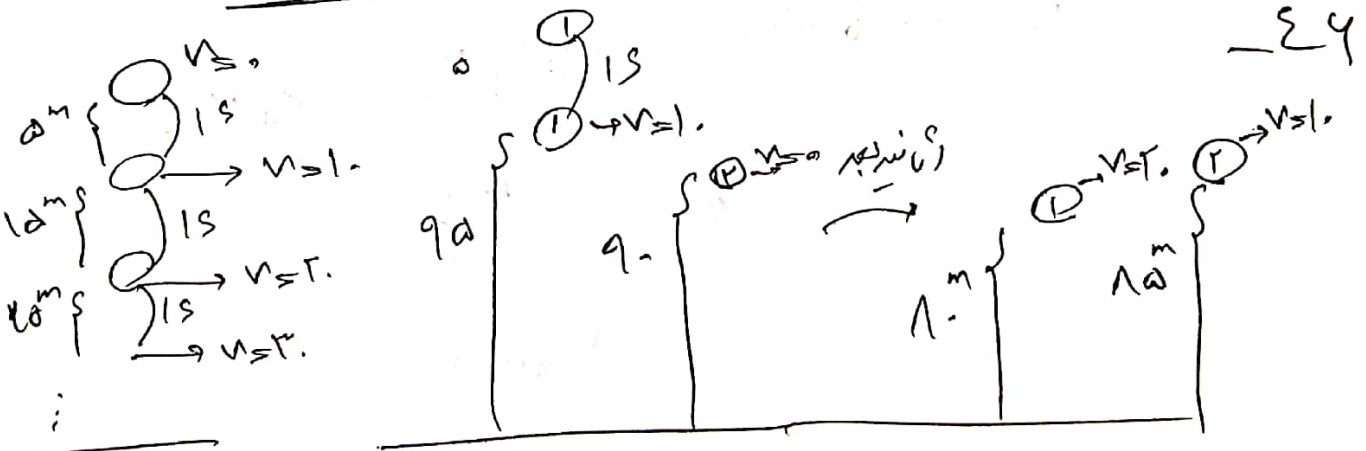
$g_B = 1.9$

$\Delta h_A = \frac{1}{f} \times 1.9 \times 10 = 9.0 \text{ m}$

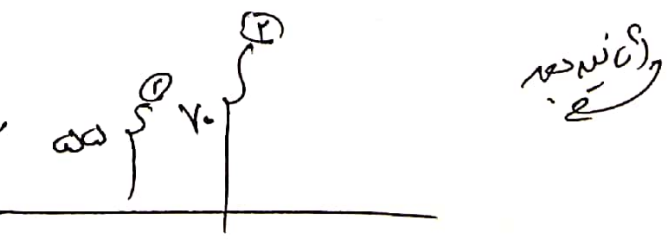
$\Delta h_B = \frac{1}{f} \times 1.9 \times 7^2 = 11.1 \text{ m}$

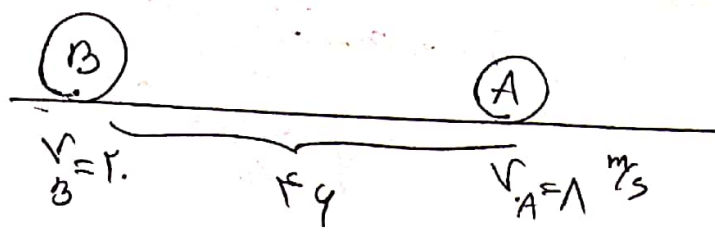
11.1 m

انحراف



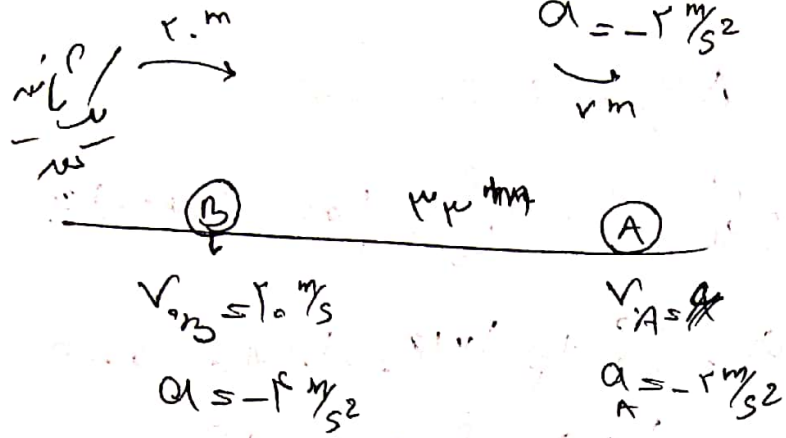
انحراف
 انحراف





$$\Delta u = \frac{1}{r} a t^2 + v \cdot t$$

$$= \frac{1}{r} x - r t + r t = v m$$



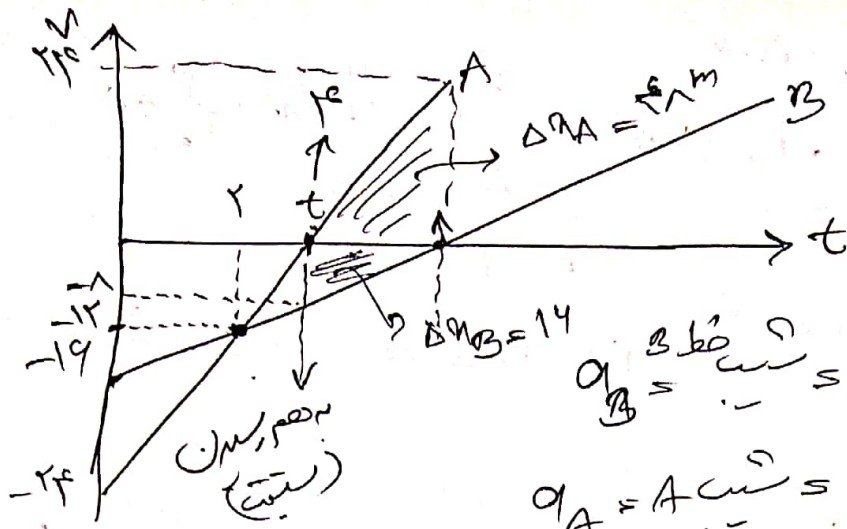
(-) $v_A = v_B \Rightarrow \frac{1}{r} x - r t^2 + r t + r = \frac{1}{r} x - r t^2 + r t$

$$-t^2 + r t + r = -r t^2 + r t \Rightarrow t^2 - 12t + r = 0$$

$$(t-11)(t-r) = 0 \Rightarrow \begin{cases} t=11 \\ t=r \end{cases}$$

$$v_B = a t + v = -r \times 11 + r = -10r + r \Rightarrow v_B = 1 \frac{m}{s}$$

Final



$$a_B = \frac{19}{1} = 19$$

$$a_A = A \cdot \frac{1}{t} = \frac{19}{t} = 9 \Rightarrow \frac{19}{t} \Rightarrow t = \frac{19}{9}$$

حداکثر سرعت در این لحظه

$$19 + 14 = 9 \times 19$$

در این لحظه
سرعت

$$P = 19t - 9$$

$$P = (19t - 9) \vec{i}$$

$$t_1 = 1s$$

$$t_2 = 19s$$

- ۵۰

$$F_t = \frac{\Delta P}{\Delta t}$$

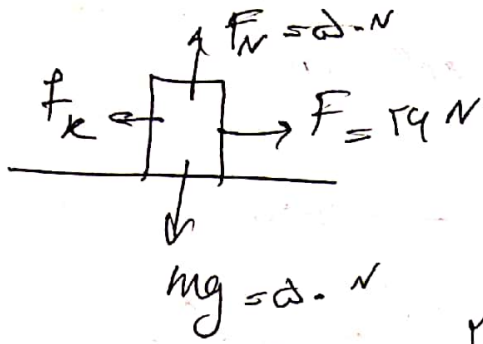
$$P_1 = 19 \times 1 - 9 = 10$$

$$P_2 = 19 \times 19 - 9 = 352$$

$$\Delta P = 352 - 10 = 342$$

$$F_t = \frac{342}{19} = 18 \vec{i}$$

در این لحظه

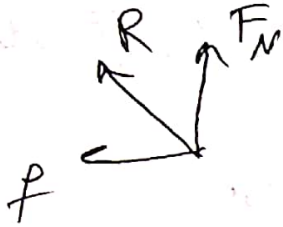


$$f_k = \mu_k F_N = \frac{1}{10} \times a \cdot N = 1 \cdot a \cdot N$$

$$\sum F = ma$$

$$F - f_k = ma$$

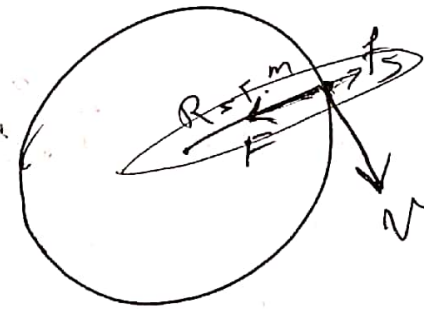
$$14 - 1 \cdot a = a \Rightarrow a = \frac{14}{2} = 7 \text{ m/s}^2$$



$$R = \sqrt{F_N^2 + f^2} = \sqrt{10^2 + 10^2} = 10\sqrt{2} \text{ N}$$

μ in 10

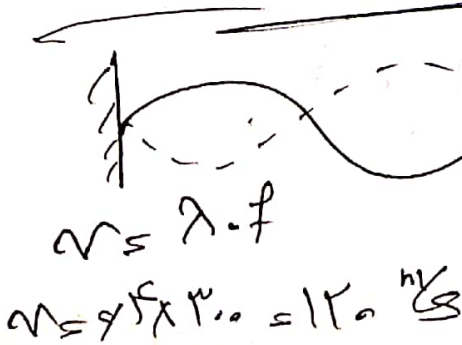
$$v = \lambda \frac{nm}{h} = a \frac{m}{s}$$



$$F = \frac{mv^2}{R}$$

$$F = \frac{100 \times 10}{1} = 1000 \text{ N}$$

μ in 10



$$L = 90 \text{ cm}$$

$$L = \frac{\lambda}{2}$$

$$\lambda = 180 \text{ cm}$$

$$v = 180 \times 3.0 = 540 \text{ m/s}$$

$$f = 3.0 \text{ Hz}$$

$$f_n = n f_1$$

$$3.0 = 3 f_1 \Rightarrow f_1 = 1.0 \text{ Hz}$$

$$\omega \cdot \pi = \frac{EA}{T} \Rightarrow T = \frac{EA}{\omega} \text{ s}$$

$$\Delta t = \frac{L}{v} \Rightarrow \frac{L}{v}$$

$$S = \frac{L}{\Delta t} \Rightarrow \lambda = \frac{L}{v} \Rightarrow L = v \cdot \frac{L}{v} \text{ cm}$$

$$T \rightarrow EA \text{ cm}, \quad \frac{T}{v} \rightarrow EA \text{ cm}$$

$$\mu \text{ cm} = EA \rightarrow A = \frac{\mu}{v} \text{ cm}$$

نیچے



$$\frac{\lambda}{v} = \omega \text{ cm}$$

$$\lambda = 600 \text{ cm} = 1 \text{ m}$$

$$v = \frac{\lambda}{T} = \frac{1 \text{ m}}{T} \Rightarrow T = \frac{1}{v} = \frac{1}{1000} = 1 \text{ ms}$$

نیچے

$$E_e = \frac{1}{2} \lambda \omega$$

$$E_i = \frac{1}{2} \mu v \omega$$

$$\Delta E = \frac{1}{2} \mu v \omega$$

$$\frac{1}{2} \mu v \omega = n = f, \quad n' = 1$$

$$W = \frac{hc}{\lambda_1} \quad \lambda_2 = \frac{1}{4} \lambda_1$$

- 29

$$K_2 = 9 K_1$$

$$K = \frac{hc}{\lambda} - W$$

$$\frac{hc}{\lambda_1} - W = 9 \left(\frac{hc}{\lambda_1} - W \right)$$

$$\frac{hc}{\lambda_1} - W = \frac{8hc}{\lambda_1} - 9W$$

$$\frac{hc}{\lambda_1} + 8W = \frac{8hc}{\lambda_1} \Rightarrow W = \frac{hc}{8\lambda_1}$$

$$W \lambda_1 = \frac{hc}{8} \Rightarrow \lambda_1 = \frac{hc}{8W}$$

$$\lambda_1 = 125 \text{ nm} \quad \text{گزینه ۲}$$

- 90

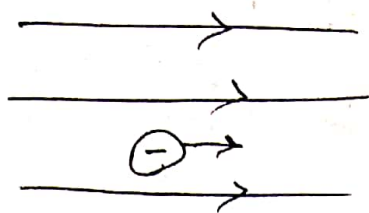
$$\frac{v_2}{v_1} = \frac{\mu_2}{\mu_1}$$

$$u = \frac{1}{4} cv$$

- 91

$$\frac{u_2}{u_1} = \left(\frac{v_2}{v_1} \right)^2 = \frac{9}{16}$$

$$\mu_2 = \frac{3}{4} \mu_1$$



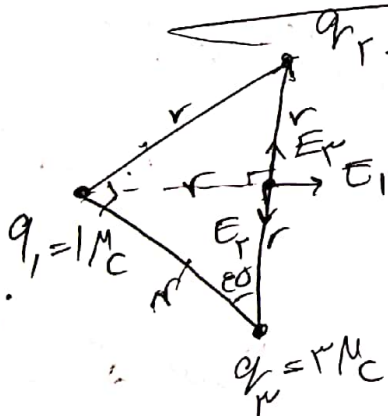
بار مثبتی: $\Delta U > 0$
در جهت مسطح
حرکت کند.

ΔV کاهشی است

$$|\Delta V| = \frac{\Delta U}{q} = \frac{2 \times 10^{-9}}{2 \times 10^{-9}} = 10 \text{ ولت}$$

$$\Delta V = -10 \text{ ولت}$$

پس منفی



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

$$E_2 = \frac{4k}{r^2}$$

$$E_3 = \frac{4k}{r^2}$$

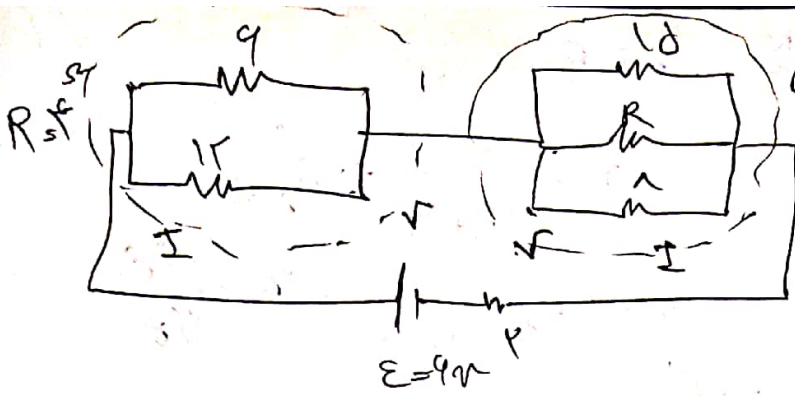
$$E = \sqrt{2} E_1$$

$$E = \sqrt{2} E_1$$

$$E_2 - E_3 = \frac{k}{r^2} = E_1$$

$$E' = \sqrt{E_1^2 + E_2^2} = \sqrt{\left(\frac{k}{r^2}\right)^2 + 4\left(\frac{k}{r^2}\right)^2} = \sqrt{5} \cdot \frac{k}{r^2}$$

$$\frac{E'}{E} = \frac{\sqrt{5}}{\sqrt{2}} = \sqrt{\frac{5}{2}}$$



$R = 9\Omega$ - 9Ω

$R_t = 1\Omega$

$I_t = \frac{E}{R_t + r} = \frac{9}{1+1} = \frac{9}{2}$

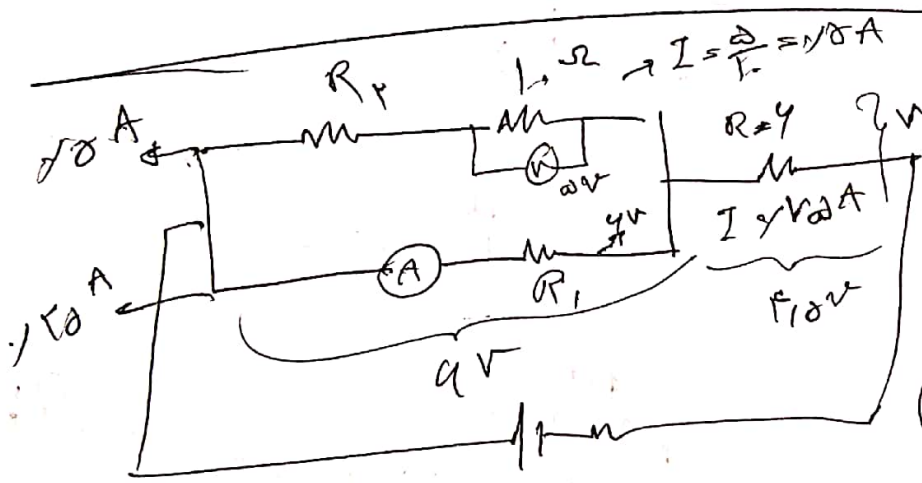
$V = IR$
 $1.2 = I \times 9$
 $R = 9\Omega$

$I = \frac{V}{R} = \frac{1.2}{9} = \frac{2}{15} A$

$V_t = E - Ir = 9 - \frac{9}{2} \times 1 = 4.5V$

$V_t = 1V = 1A \rightarrow V = 1V$

پہلے



$I = \frac{E}{R_t} = 1.8A$

$V = 9 \times \frac{1}{2} = 4.5V$ - 9d

$I_t = \frac{E}{R_t + r}$

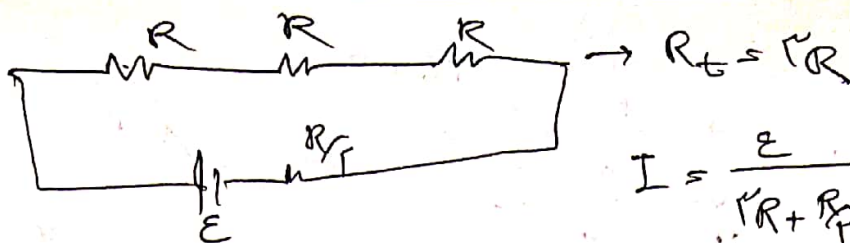
$V = E - Ir$

$V = 1.2 - \frac{2}{15} \times 9 = 1.2V$

$1.2 - \frac{E}{10} = 9V$

$R_1 = \frac{V_1}{I_1} = \frac{4}{\frac{1}{2}} = 8\Omega$

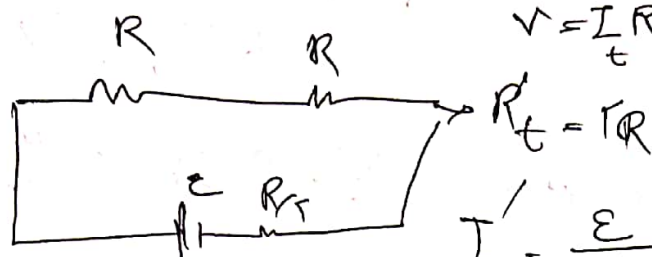
پہلے



$$I = \frac{E}{3R + r} = \frac{E}{4R}$$

$$V = I R_t = \frac{E}{4R} \times 3R = \frac{3E}{4}$$

سوال
میں

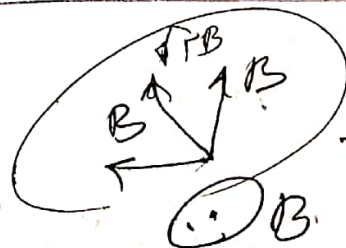
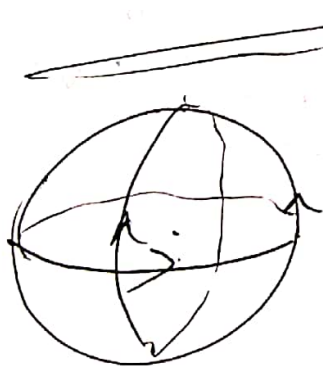


$$I' = \frac{E}{R'_t + r} = \frac{E}{4R}$$

$$V' = R'_t I' = \frac{E}{4R} \times 3R = \frac{3E}{4}$$

$$\frac{V'}{V} = \frac{\frac{3E}{4}}{\frac{3E}{4}} = \frac{V}{V} = \frac{1}{1}$$

میں



$$B' = \sqrt{2} B \quad - 9V$$

$$B_t = \sqrt{2B^2 + B^2} = B\sqrt{2}$$

$$B = \frac{\mu_0 I}{2R} = \frac{4\pi \times 10^{-7} \times 2}{2 \times 10 \times 10^{-2}} = \frac{10^{-9}}{5} = 2 \times 10^{-9}$$

$$B_t = 2\sqrt{2} \times 10^{-9} T \quad \text{میں}$$

$$l = 10, v \text{ cm} = 10 \times 10^{-2} \text{ m}$$

- 99

$$N = 1000 \quad A = 1 \text{ cm}^2 = 1 \times 10^{-4} \text{ m}^2$$

$$L = \frac{\mu_0 N^2 A}{l} = \frac{4\pi \times 10^{-7} \times 10^6 \times 1 \times 10^{-4}}{10 \times 10^{-2}} = 4\pi \times 10^{-4} \text{ H}$$

$$L = 7,1 \times 10^{-4} \text{ H} \approx 7,1 \text{ mH}$$

$$r = 1 \text{ cm} = 10^{-2} \text{ m}$$

- 100

$$A = \pi r^2 = 3,14 \times 10^{-4} \text{ m}^2$$

$$\theta = 90^\circ$$

$$\Delta t = 10, v \times 10^{-2} \text{ s}$$

$$B_1 = 1 \text{ T}, B_2 = 0$$

$$\mathcal{E} = A \cos \theta \frac{\Delta B}{\Delta t} = 3,14 \times 10^{-4} \times \frac{1}{10 \times 10^{-2}} = 3,14 \times 10^{-4} \text{ V}$$

$$\mathcal{E} = 3,14 \text{ V}$$

Friedrich

۱-۷-۱

$$A = d \text{ mm}^2$$

- ۷۲

$$\frac{mg}{A} = \frac{1}{d} \Rightarrow \frac{m \times 10}{d \times 10^{-9}} = 10 \Rightarrow m = d \times 10^{-7} \text{ kg}$$

$$m = d \cdot g$$

پیدا

$$m = 1 \times 10^{-7} \text{ kg} \quad F = 9000 \text{ N} \quad - ۷۳$$

$$\theta = 45^\circ \quad f_k = 2000 \text{ N}$$

$$d = d^m$$

$$\Delta K = W_t = ?$$

$$W_t = W_F + W_f = F \cdot d \cos \theta - f_k d$$

$$W_t = 9000 \times \frac{1}{10} \times d - 2000 \times d = 1000 \times d = 1000 \text{ J}$$

پیدا

$$m_1 = 10g \quad \theta_1 = 70^\circ \text{ C}$$

$$m_2 = 7g \quad \theta_2 = 10^\circ \text{ C}$$

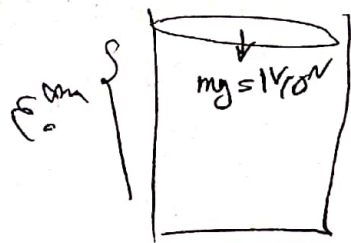
$$m_3 = 100g \quad \theta_3 = 17^\circ \text{ C}$$

$$\theta_e = \frac{m_1 c_1 \theta_1 + m_2 c_2 \theta_2 + m_3 c_3 \theta_3}{m_1 c_1 + m_2 c_2 + m_3 c_3}$$

$$\theta_e = \frac{10 \times \Sigma \Gamma_{00} \times 70 + 7 \times \Sigma \Gamma_{00} \times 10 + 100 \times \Sigma_{00} \times 17}{10 \times \Sigma \Gamma_{00} + 7 \times \Sigma \Gamma_{00} + 100 \times \Sigma_{00}}$$

$$\theta_e = \frac{1.721 \times 10^4}{8.7 \times 10^4} \Rightarrow \theta_e = 17^\circ \text{ C}$$

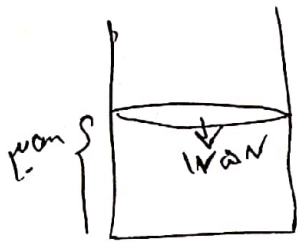
۱۷ درجه



$$\text{قوت } T \Rightarrow P_1 V_1 = P_2 V_2$$

$$\left(P_{\text{هوا}} + \frac{m_1 g}{A} \right) \times V_1 = \left(P_{\text{هوا}} + \frac{m_2 g}{A} \right) \times V_2$$

$$\left(P_{\text{هوا}} + \frac{170 \sigma}{\sigma \times l_1} \right) \times V_1 = \left(P_{\text{هوا}} + \frac{170 \sigma}{\sigma \times l_2} \right) \times V_2$$



$$P_{\text{هوا}} \times l_1 + V = P_{\text{هوا}} \times l_2 + \sigma l_2$$

$$\sigma \times l_1 \times P_{\text{هوا}} = \sigma l_2 \Rightarrow P_{\text{هوا}} = \frac{\sigma l_2}{\sigma \times l_1}$$

$$P_{\text{هوا}} = \frac{\sigma l_2}{\sigma \times l_1} = 9,1 \times 10^4$$

نتیجه

برای مشاهده ویدیوی حل سوالات به اینستاگرام

almasian.physics مراجعه کنید.

با ارزوی توفیق

دانش‌آموزان