Yakeen NEET 2.0 2026

Play with

PHYSICS in MR Style

Lecture- 02

(1) अलग से इसका Note बनाना है।
(2) Kuch बातें समझ ना आये, Pardon मत होना, जब Chapter आएगा वहाँ भी ये Question करेंगे।।

By - Manish Raj (MR Sir)

Percentage change

Any Physical quanity (P) Increase to x%

$$P_{final} = x\% \, P_i$$

Any Physical quanity P decreases to x%

$$P_{final} = x\% \cdot P_i$$

Any Physical quanity P Incres by x%

$$P_{final} = P + x\% \times P$$

Any Physical quanity P decreases by x%

$$P_{final} = P - x\% \cdot P$$

$P_{intial} = P_i$

Ex gf Tempr Incres to 300%

$$T_f = 300\% \cdot T_i$$

$$= \frac{300}{100} T_i$$

$$T_f = 3T_i$$

gf Tempr is decrez to 30%

$$T_f = 30\% \cdot T_i$$

gf Tempr Incres by 300%

$$T_f = T_i + 300\% \cdot T_i$$

Ram lal ke pas Paisa → 20 rupiya

800% ho gya Ramlal Ka Paisa

final Paisa = 800% of x_i

$$= \frac{800}{100} \times 20$$

$$= 160 \text{ Rupiya}$$

(1) If momentum is decrease to 50% then final Momentum will be

$P_f = 50\% P_i = \frac{50}{100} P_i$

$P_f = \frac{P_i}{2}$

(2) momentum is decreased by 50%

then $P_f = P_i - 50\% \cdot P_i = P_i - \frac{1}{2} P_i = \frac{P_i}{2}$ *

(3) momentum is decrease to 40% $\longrightarrow P_f = 40\% \cdot P_i = \frac{40}{100} P_i$ ✓

(4) momentum is decrease by 40%

$P_f = P_i - 40\% P_i = P_i \left(1 - \frac{40}{100}\right)$

$= P_i \left(\frac{60}{100}\right)$

$= \frac{6}{10} P_i$ ✓

momentum is Increases to 300% ⟶ $P_f = 300\% \cdot P_i$

$= \frac{300}{100} P_i = 3P_i$

momentum is Increases by 300% ⟶ $P_f = P_i + 300\% \cdot P_i$

$= P_i\left(1 + 3\right) = 4P_i$

momentum is Increases to 150% ⟶ $P_f = 150\% \cdot P_i$

momentum is Increases by 150% ⟶ $P_f = P_i + 150\% \cdot P_i$

$= P_i\left(1 + \frac{150}{100}\right)$

$$P_f = \frac{250}{100} P_i$$

K.E is Increase by 20%. $\longrightarrow$ $K.E_f = K.E_i + 20\% K.E_i$

$K.E_f = 120\% K.E_i$

$= \frac{120}{100} K.E_i$ ✓

K.E is decrease by 20%. $\longrightarrow$ $K.E_f = K.E_i - 20\% EK_i$

$= K.E_i - \frac{20}{100} K.E_i$

$= \left(\frac{80}{100}\right) K.E_i$ ✓

K.E is decrease to 20%.

$K.E_{fin} = 20\% K.E_i$ ✓

% change

$y = x^3$

$\frac{dy}{y} = 3\left(\frac{dx}{x}\right)$

large change

(*)

$$\% \text{ change in } P = \frac{P_f - P_i}{P_i} \times 100$$

$$= \frac{\Delta P}{P_i} \times 100$$

$P_f = 600\% P_i$

if Pressure becomes 6 times then % change in Pressure

$P_i = P_0$

$P_f = 6P_0$

$$\% \text{ change in Pressure} = \frac{6P_0 - P_0}{P_i} \times 100 = \frac{5P_0}{P_0} \times 100 = 500\%$$

Small change

$\frac{dP}{P} \cdot 100$ % error

↳ differential term

$y = x^2$

diff^n of y w.r.t x

$\frac{dy}{dx} = 2x$

$dy = 2x\,dx$

divide by y both sides

$\left(\frac{dy}{y}\right) = \frac{2x\,dx}{x^2} = 2\left(\frac{dx}{x}\right)$

$\frac{dy}{y} \times 100 = 2\frac{dx}{x} \times 100$

$$P = \frac{x^3\sqrt{y}}{c}$$

$$\left(\frac{dP}{P} = 3\frac{dx}{x} + \frac{1}{2}\frac{dy}{y} + \frac{\Delta c}{c}\right)_{\text{error}}$$

$$\left(\frac{dP}{P} = 3\frac{dx}{x} + \frac{1}{2}\frac{dy}{y} - \frac{\Delta c}{c}\right)_{\text{change}}$$

gf Moment of body Increases by 2% then % Change in K.E ??

$100 \times \frac{dP}{P} = 2\%$

$\frac{dK.E}{K.E} \times 100 = ??$

We Know

$$K.E = \frac{P^2}{2m}$$ (cut)

$$100 \times \frac{dK.E}{K.E} = 2\left(\frac{dP}{P} \times 100\right)$$

$$= 2 \times 2$$

$$= 4\%$$

If K.E is Incread by 300% then find % chang in Momentum.

$K.E = \frac{P^2}{2m}$

Soln

$K.E_f = K.E_i + 300\% \cdot K.E_i$

$= K.E_i\left(1 + \frac{300}{100}\right)$

$\boxed{K.E_f = 4K.E_i}$

$P = \sqrt{2m K.E}$

$P_i = \sqrt{K.E_i}$

$P_f = \sqrt{K.E_f} = \sqrt{4KE_f} = 2\sqrt{KE_i} = 2P_i$

$\therefore$ change in P $= \frac{P_f - P_i}{P_i} \times 100$

$= \frac{2P_i - P_i}{P_i} \times 100$

$= 100\%$

If K.E. is decreased by 19% then % change in P (momentum)

Soln

$K.E_i$ = initial K.E

$K.E_f = K.E_i - 19\% \cdot K.E_i$

$$K.E_f = \frac{81}{100} K.E_i$$

$$P = \sqrt{2mK.E}$$

$$P_i = \sqrt{K.E_i}$$

$$P_f = \sqrt{K.E_f} = \sqrt{\frac{81}{100} K.E_i}$$

$$P_f = \frac{9}{10}\sqrt{K.E_i}$$

$$\% \text{ change} = \frac{\frac{9}{10}\sqrt{K.E_i} - \sqrt{K.E_i}}{\sqrt{K.E_i}} \times 100$$

$$= \left(\frac{9}{10} - 1\right) \times 100 = -\frac{1}{10} \times 100 = -10\%$$

If % change in distance is 2% then electric force b/w Charges will be.

$$F = \frac{KQ_1Q_2}{r^2}$$ Const

$$F \propto \frac{1}{r^2}$$

$$F \propto r^{-2}$$

$$1\omega \times \frac{dF}{F} = -2\left(\frac{\Delta r}{r}\right) \times 1\omega$$

$$= -2 \times 2\%$$

$$= -4\%$$

decrease

If distance b/w two charge increases to 200% then find % change in force.

$q_1 \text{ —— } r \text{ —— } q_2$

$r_f = 200\% \cdot r_i$

$r_f = \frac{200}{100} r_i$

$\boxed{r_f = 2r_i}$

$F_i = \frac{Kq_1q_2}{r_i}$

$F_f = \frac{Kq_1q_2}{(2r_i)^2} = \frac{Kq_1q_2}{4r_i^2} = \frac{F_i}{4}$

force becre 25%.
force decrd by 75%.

% change in $f_n = \frac{\frac{F_i}{4} - F_i}{F_i} \times 100$

$= \frac{F_i\left(\frac{1}{4}-1\right)}{F_i} \times 100$

$= -\frac{3}{4} \times 100 = -75\%$


THANK
YOU