02 May 2023 21:43

Force ①

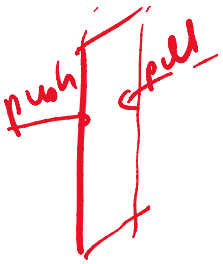
Motion ⇒ Kinematics, Mechanics

Mechanics → about motion

Dynamics = logic motion

Force → push, pull

8h, 9h → 2 days



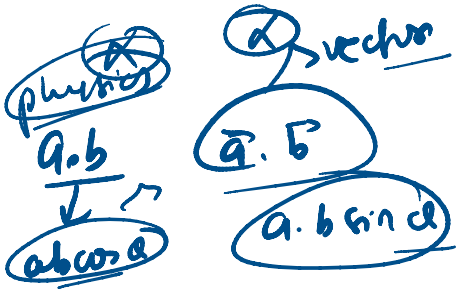
Force :→ push or pull on an object with mass causes it to change in velocity -

Force's effect

① Change in direction

② Change in speed/velocity

- force → rest body → move
- moving → rest
- force → accn → speed of moving object
- direction of moving body along with its shape and size.



force = (1) qt is vector product of mass (m) and accn (a)

$$f = ma$$

force calculated

$$f = \frac{mv}{t}$$

Or, Rate of change of momentum

$$= \frac{(mv)}{} \propto a$$

$f = \frac{mv}{t}$ $\quad m \cdot \frac{v}{t} \rightarrow a$

$m \cdot a$

unit → ① CGS → centimeter gram second system

dyne

② SKS → std. kilogram second

11th

③ SI unit standard international

(SI unit) → Newton

CGS → h.m
centimeter
mass
g

hammer → 1kg | 0.9 sec h.m

-ve
+ve

S = 60 m/sec

force

99.9999

-60

acc^n → -ve retard

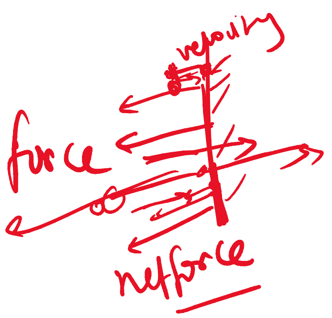
-60

+60

a

+ve acc^n

[illegible]



u — v = 0

$acc = \frac{v-u}{t}$

$\Rightarrow \frac{0-6}{0.1}$

0.1

-6×10

0.1

$\Rightarrow$ 60 m/sec^2

11, 12   mixture

(a) Dimension of force

Dimen = Dimension formula

① M. formula ↓ Final correct α

Symbol → Mass → M

length → L

Time → T

momentum ka Dimension formula

$= m \times v$

$M \quad \frac{\text{Dist}}{T} \rightarrow \frac{L}{T}$

$\frac{ML}{T}$

MLT^{-1}

momentum $\Rightarrow$ MLT^{-1}

① Dimension formula of force

$MLT \rightarrow$

force = ma

$\downarrow$

$m \propto \frac{v}{t}$

$m \propto \frac{v}{t}$ → dist / time

$m \propto \frac{dist}{t^2}$ → L

M ← $m \propto \frac{dist}{t^2}$

t^2 → T

$\frac{ML}{T^2} = [MLT^{-2}]$

pressure dimension formula

pressure = $\frac{F}{A}$ → $M \propto \frac{d}{t} \propto \frac{L}{LT}$

$M \propto \frac{K}{LT^2}$

$= ML^{-1}T^{-2}$

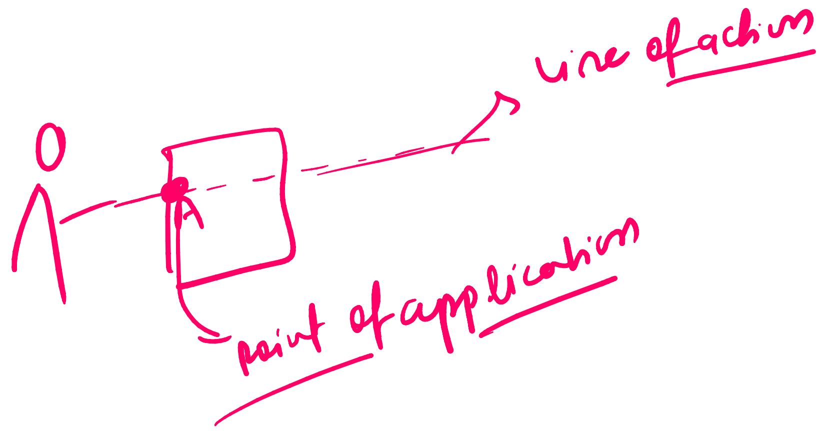
LFAT —

HW ① Line of action of force

② application of the force

Q 3 what is weakest force example

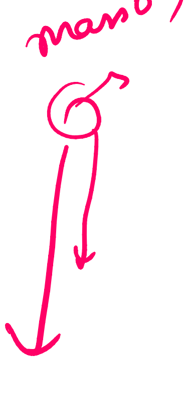
Q4 → what is strongest force



weakest → Gravity — Coupling

$F = mg = \frac{GMm}{r^2}$ (earth)

weakest force



dist b/w two object

Eilem $F = m \times g$ → gravity $9.8\, m/sec^2$

élem^t ... → gravity → 9.8m/sec²