YAKEEN NEET 2.0

2026

Laws of Motion

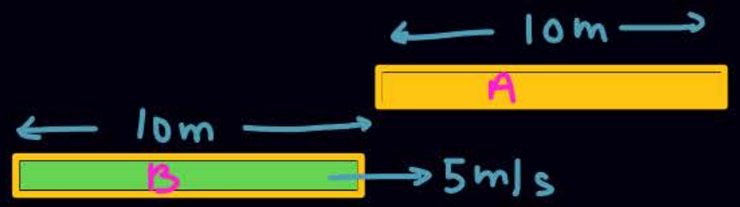
PHYSICS | Lecture 02

By - Saleem Ahmed Sir

Todays Goal

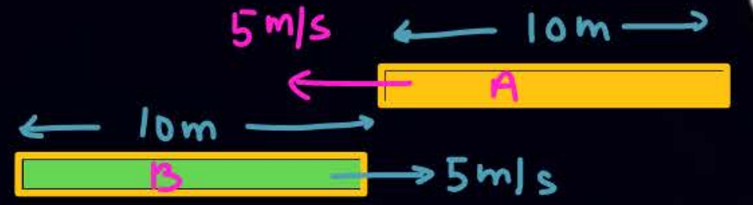
- Types of forces

Q



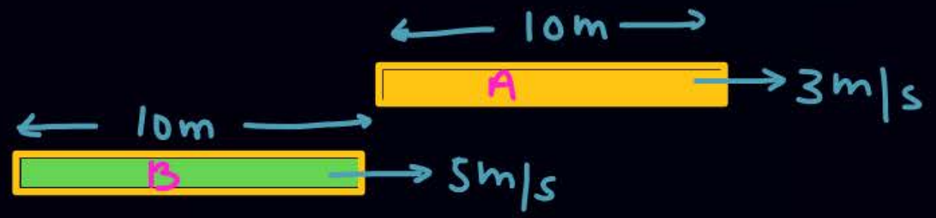
Time taken by B to cross A $= \frac{10+10}{5} = 4$ sec

Q



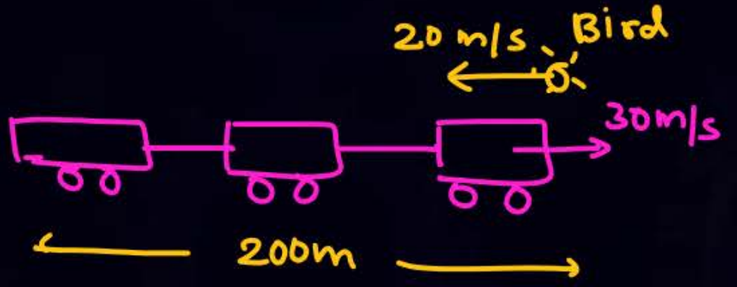
$t = \frac{10+10}{10} = 2$ sec

Q



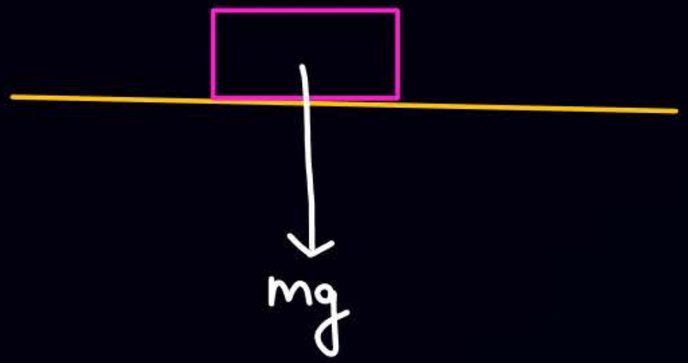
Time taken by B to cross A $= \frac{10+10}{5-3} = 10$

Q

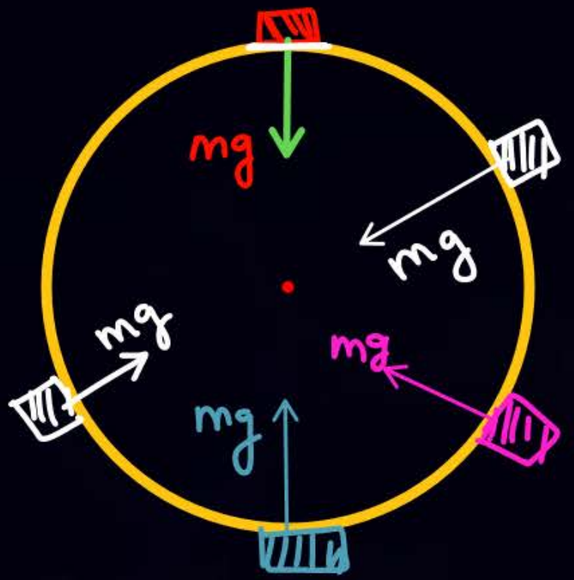


time taken to cross the train $= \frac{200}{50} = 4$

mg. Gravitational force



mg act downward towards the center of earth.



$$F = \frac{GM_e m}{r^2} = \frac{GM_e}{(R+h)^2} m$$

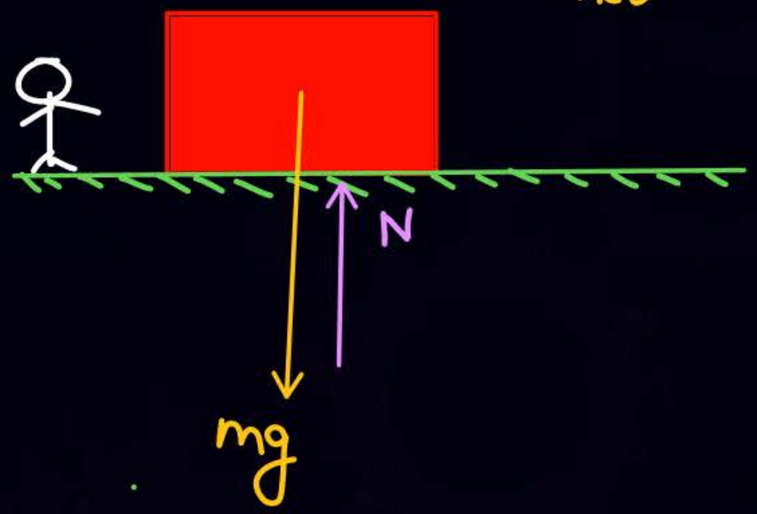
$$F = gm = mg$$

Normal Force / Normal contact force

- ~~Upar lagta hai~~

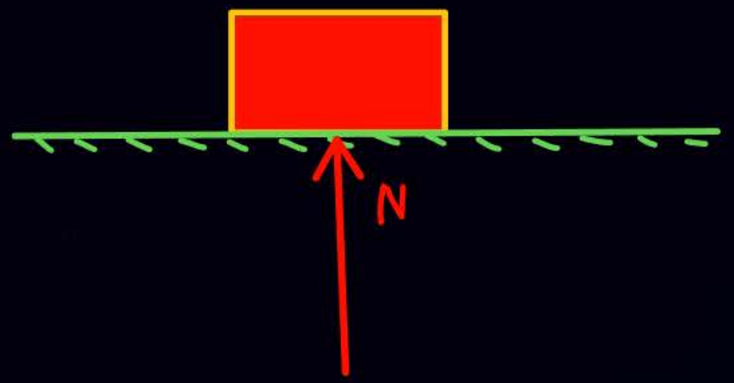
- it act towards the body. perpendicular to the surface.

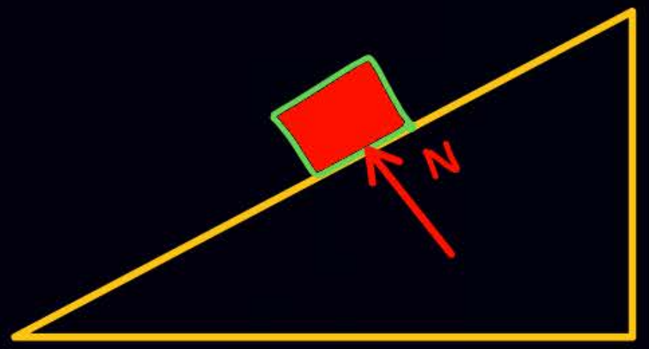
- Pushing nature.



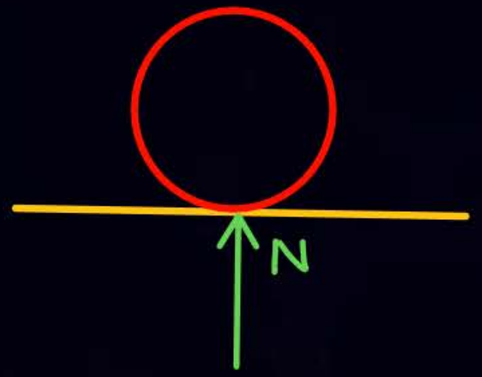
$F_{net} = 0 \Rightarrow N = mg$

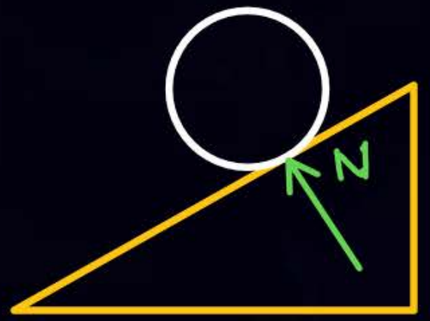
① If both surface are flat.

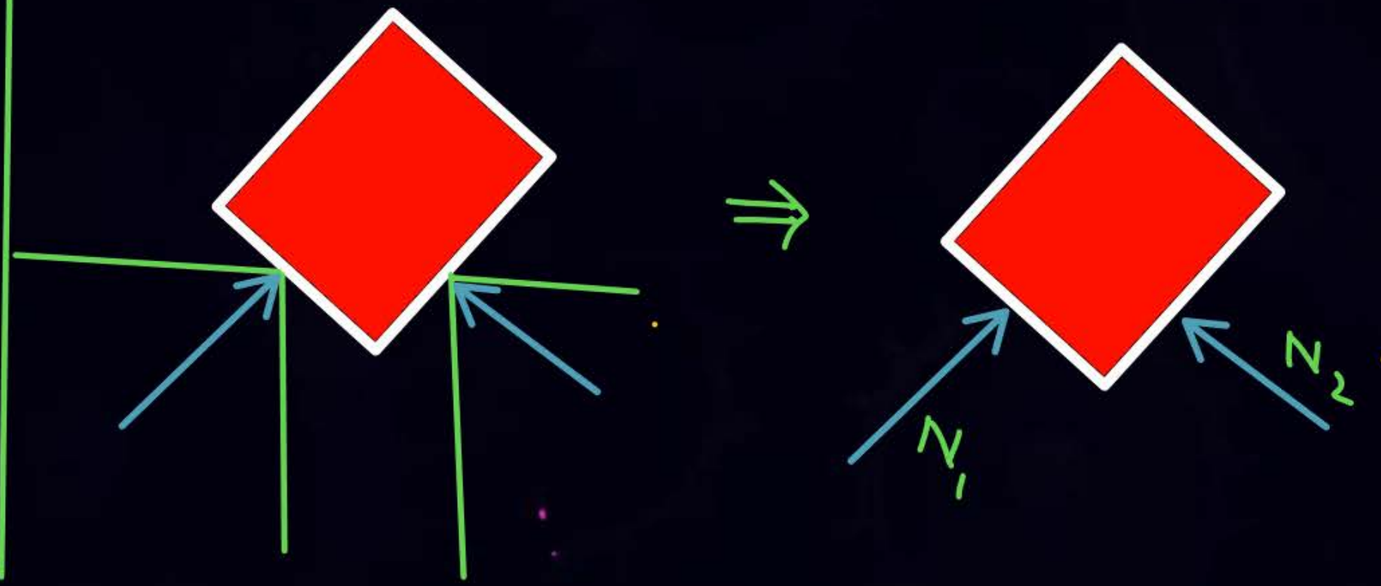




② If one surface is flat and another is Uberkhabar or irregular type.







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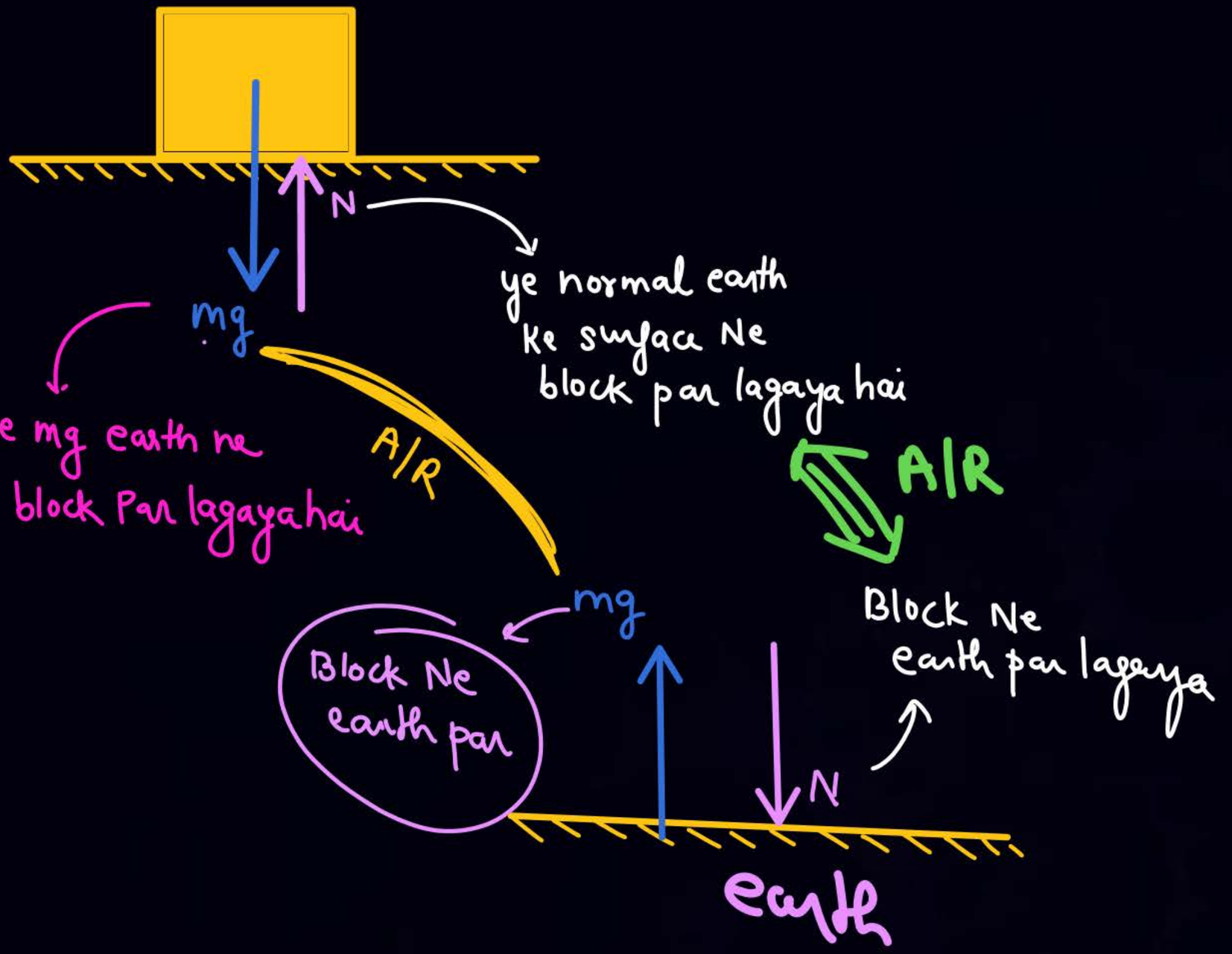
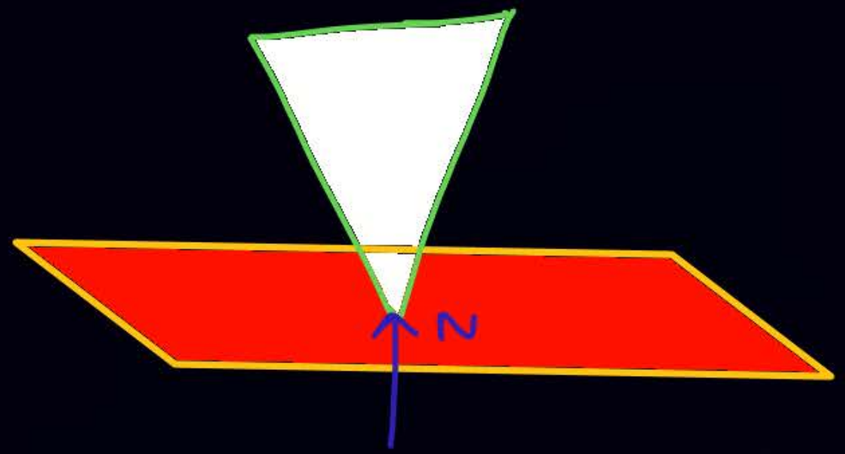
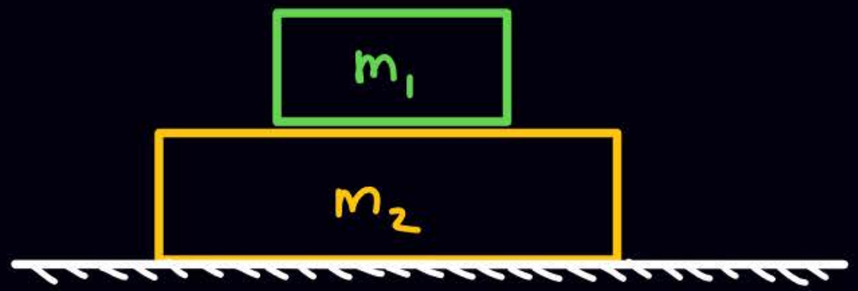
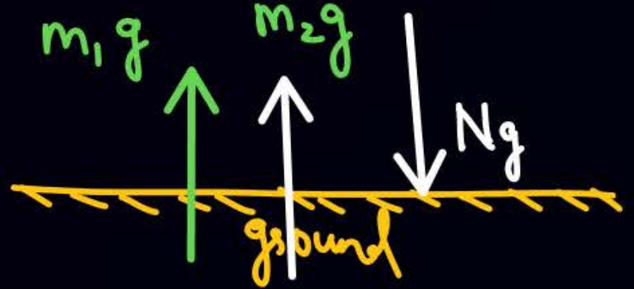

N
ye normal earth ke sufaca Ne block par lagaya hai
mg
ye mg earth ne block Par lagaya hai
A/R
A/R
mg
Block Ne earth par
Block Ne earth par lagaya
N
earth


N

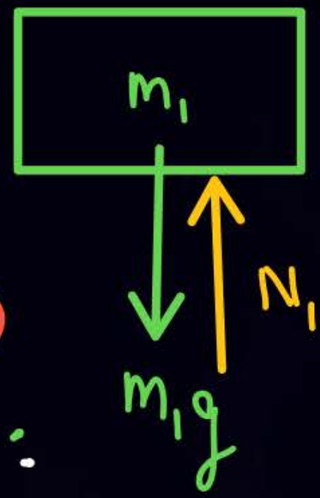
Draw the FBD of m_1 & m_2

Q



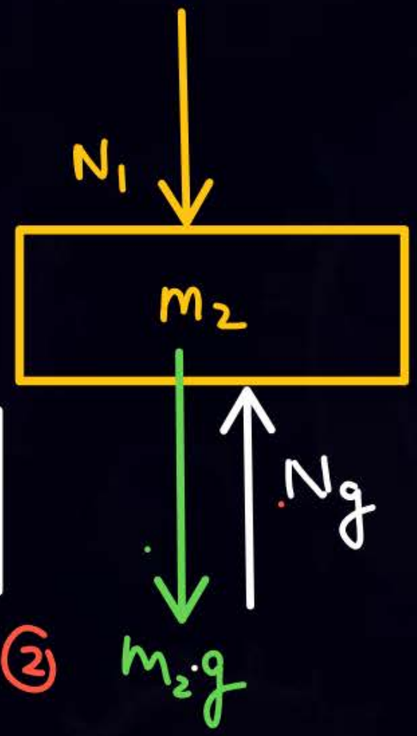


FBD of m_1



$N_1 = m_1g$ — ①

FBD of m_2



$N_1 + m_2g = Ng$ — ②

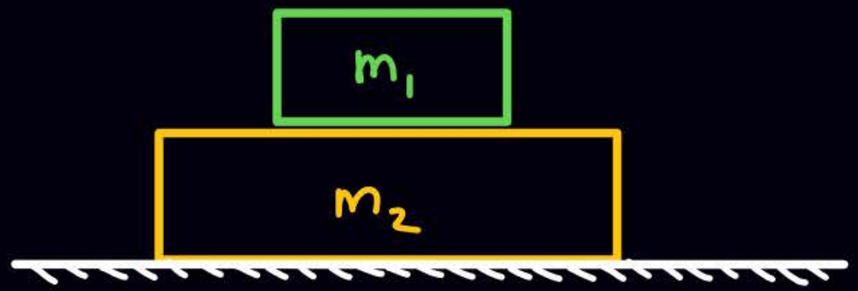
from ① & ②

$$m_1g + m_2g = Ng$$

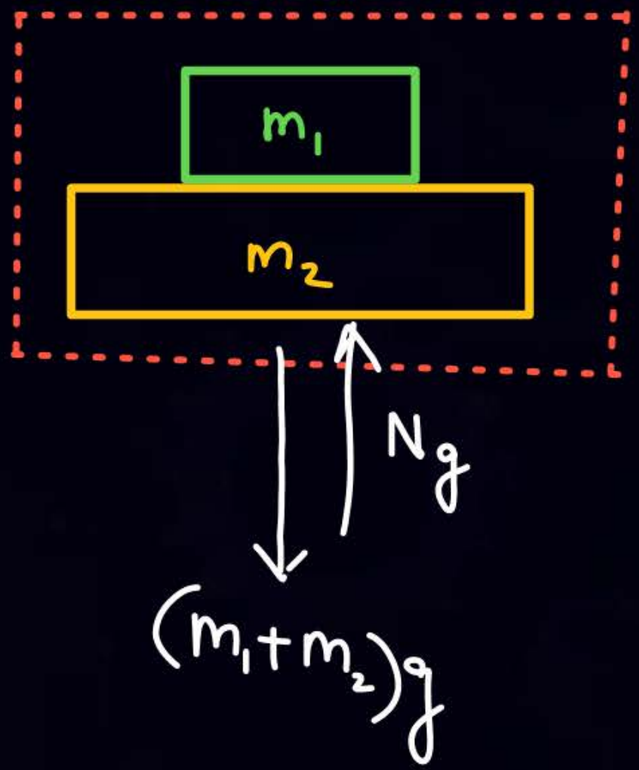
$$Ng = (m_1 + m_2)g$$

Draw the FBD of m_1 & m_2

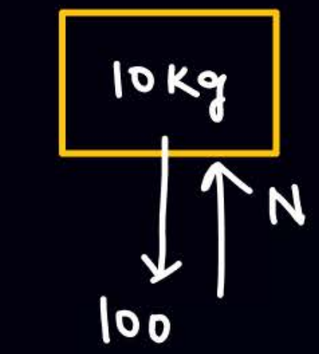
Q



Draw the FBD of (m_1+m_2)

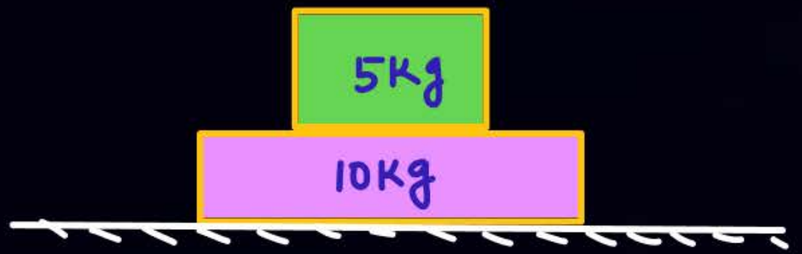


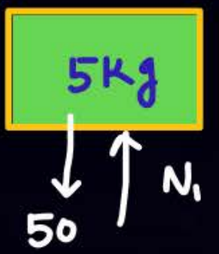
Q



$N = 100$

Q



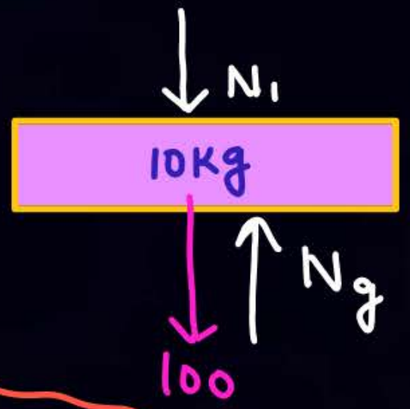


$N_1 = 50$

SKC shortcut

$N_g = 150$

Normal b/w the block = 50



$N_g = 100 + N_1$

$N_g = 100 + 50 = 150$

Skcbox

FBD ⇒ (Free body daigram)

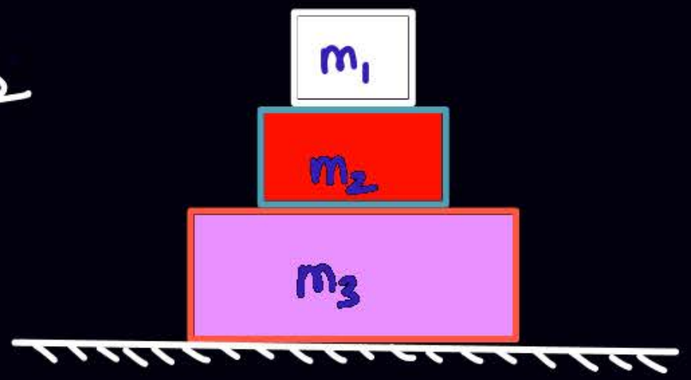
jis body ki FBD Bana rahe hai

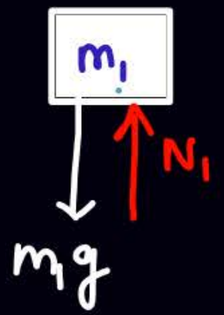
Us body par Lagne wale force dikhane hai (ext)

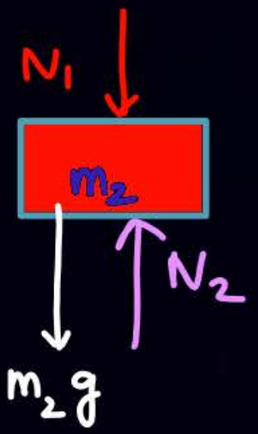
Ese daigram ko FBD

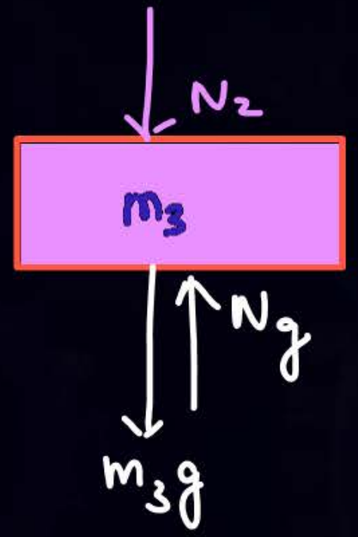
Vo body jo force Laga rahi hai usse matlab Nahi hai..

Q







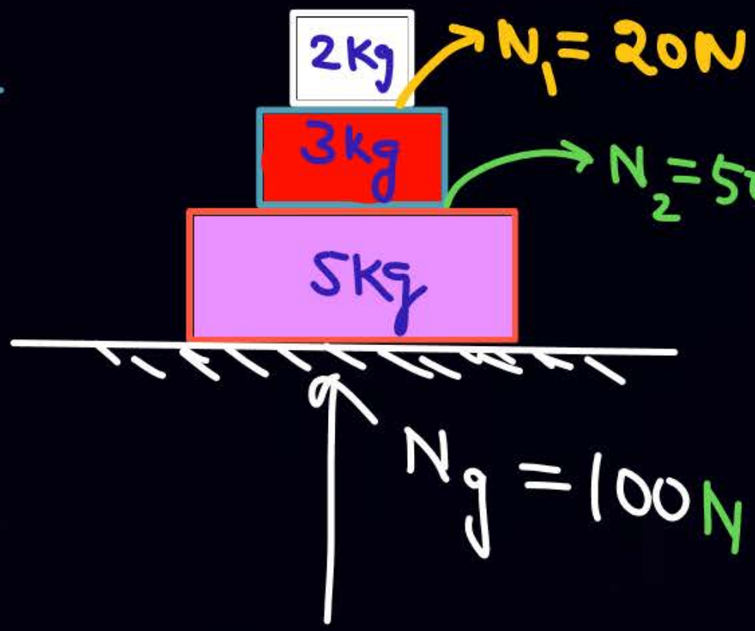


$N_1 = m_1 g$

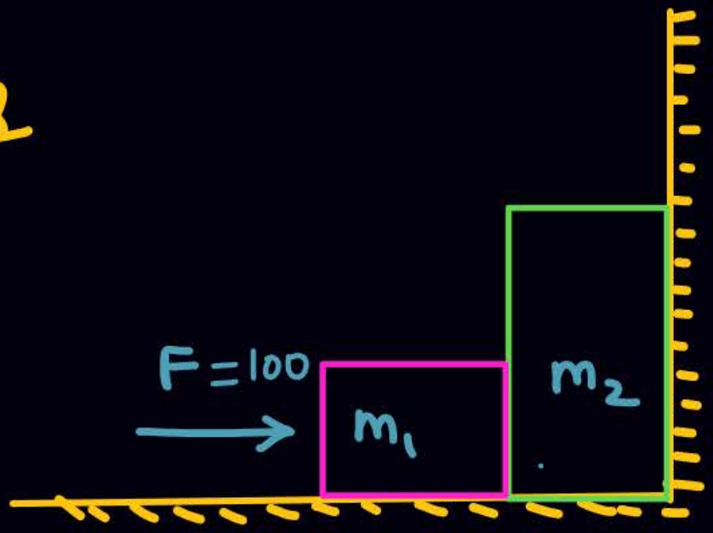
$N_2 = m_2 g + N_1 = m_2 g + m_1 g$

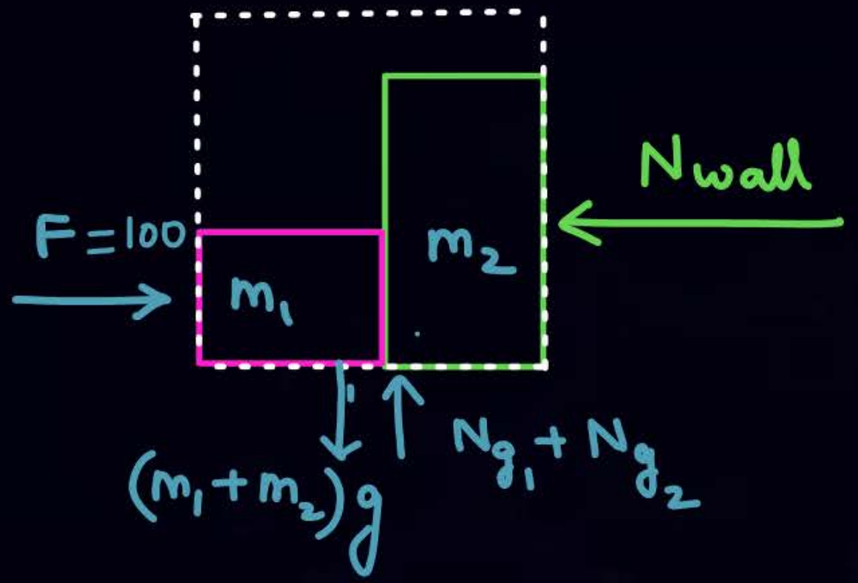
$N_g = m_3 g + N_2 = m_3 g + m_2 g + m_1 g$

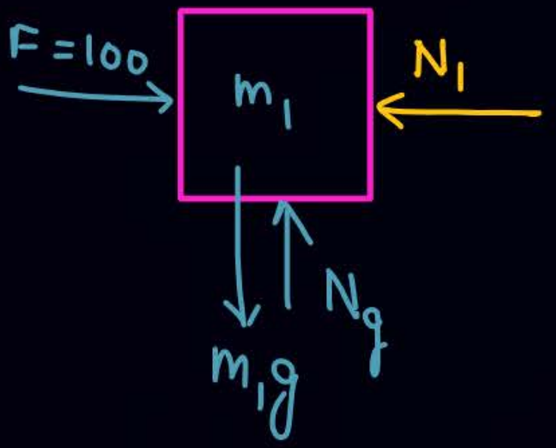
Q



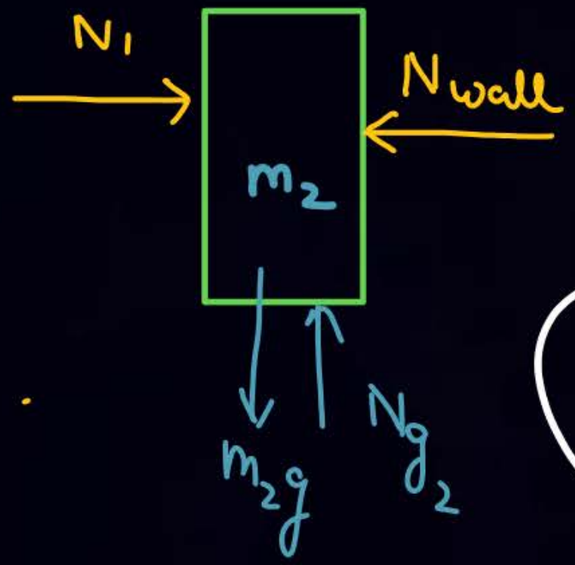
Q







$N_g = m_1g$, $N_1 = 100$



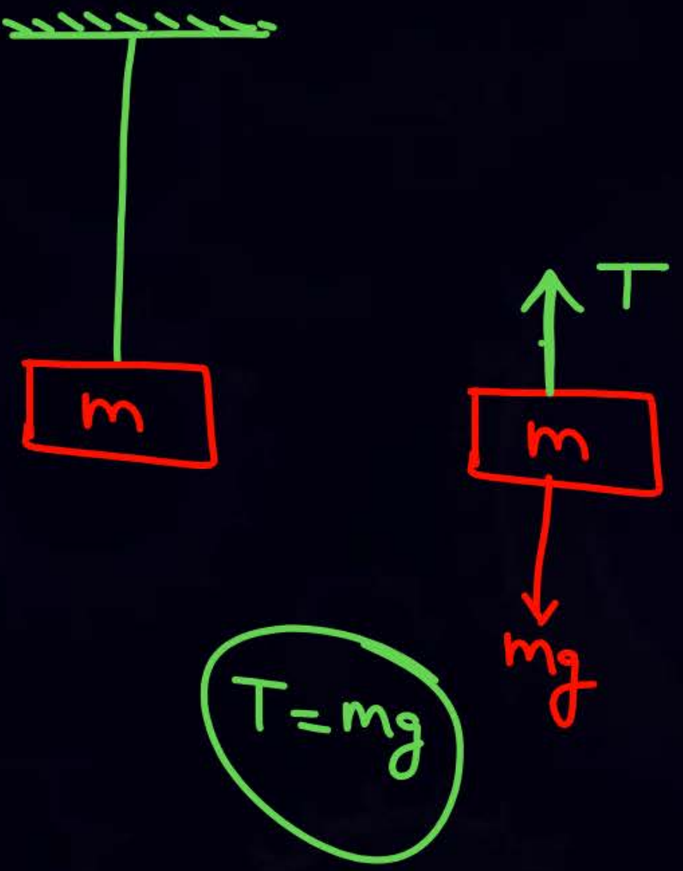
$N_{wall} = N_1 = 100$

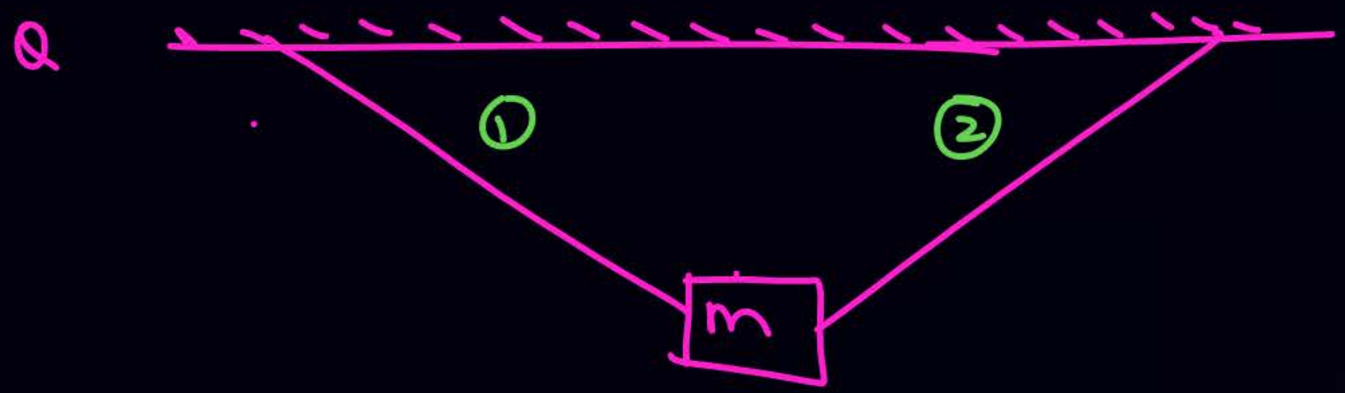
$N_{g_2} = m_2g$

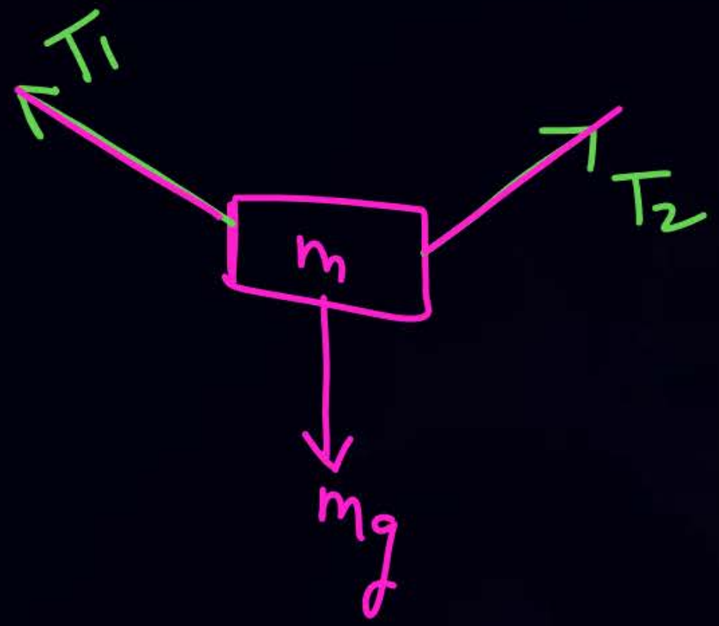
Tensiom force.

- Upar ~~lagta~~ hai
- It act away from the body towards the string.
- It is a pulling force

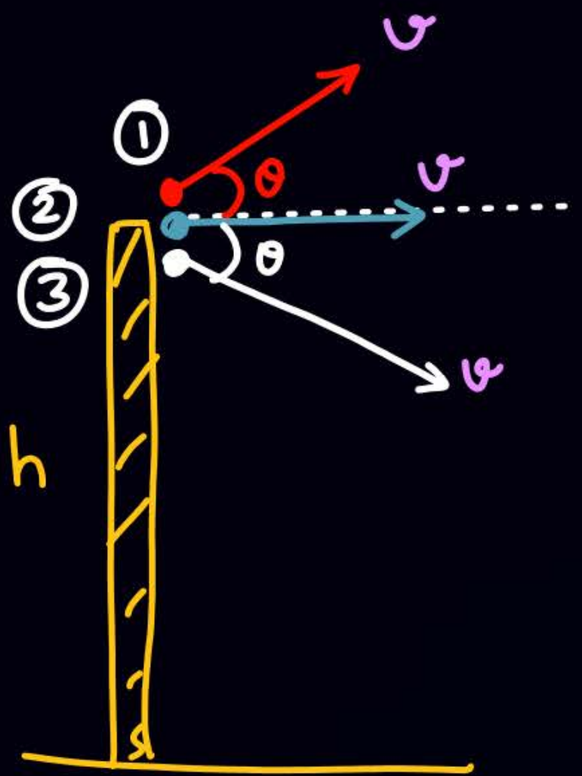
Equil.




Q
1
2
m


T1
T2
m
mg

Q



① If distance b/w ① & ② changes (increase) with const rate v. find θ.

Soln $\quad \vec{a}_{rel} = 0, \quad \vec{v}_{rel} = \text{const}$

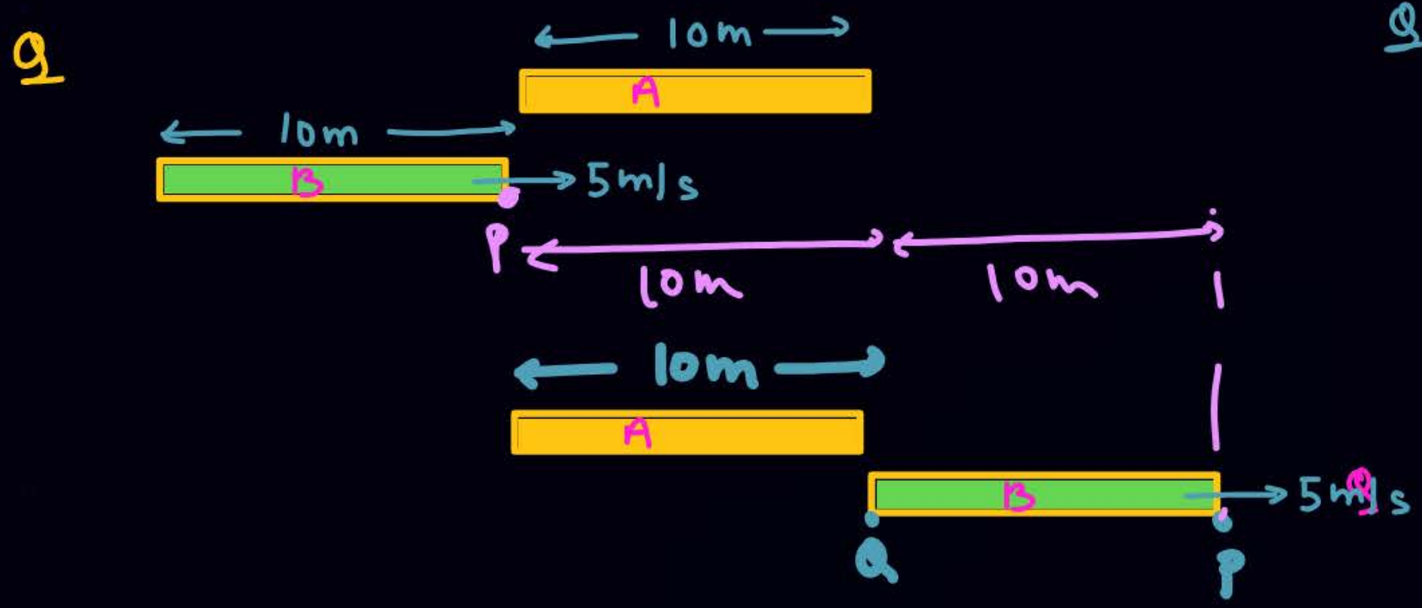
$$\boxed{|\vec{v}_1 - \vec{v}_2| = v}$$

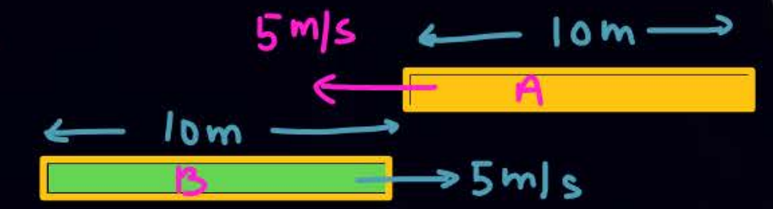
$$2v\sin\frac{\theta}{2} = v$$

$$\sin\frac{\theta}{2} = \frac{1}{2}$$

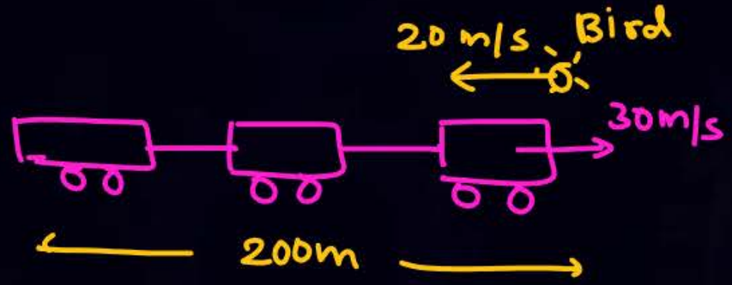
$$\frac{\theta}{2} = 30^\circ$$

$$\boxed{\theta = 60^\circ}$$





$t =$



time taken to cross the train =

Homework

- KPP-20 (will be uploaded today)
- Now you can solve module (Kinematics) (Except circular motion)

THANK YOU