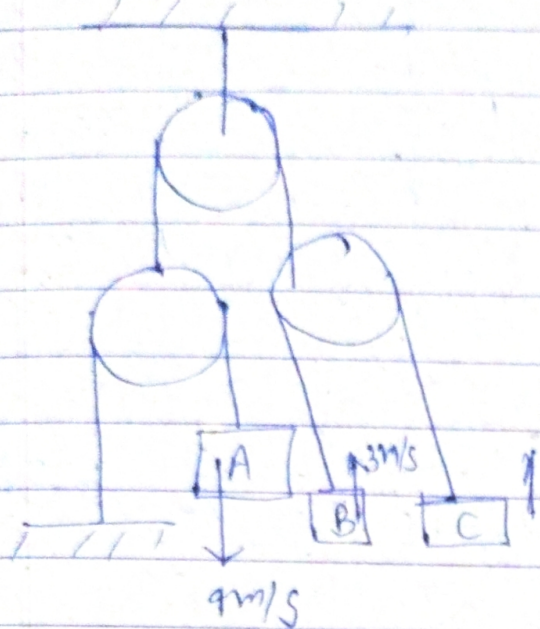


Q.2



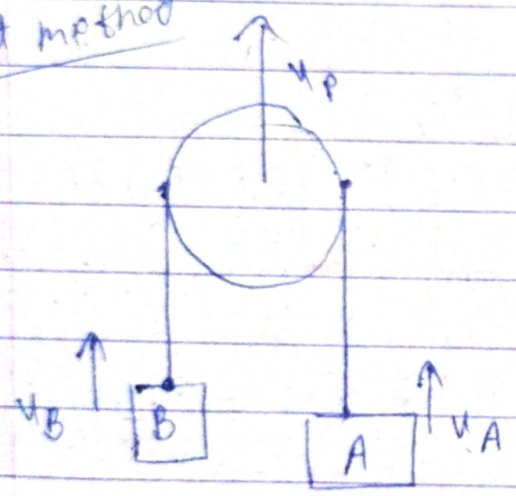
$$\frac{4+0}{2} = v_p$$

$$v_p = 2$$

$$2 = \frac{3+v_c}{2}$$

$$v_c = 1 \text{ m/s } \uparrow$$

point method



$$v_{AP} = -v_{BP}$$

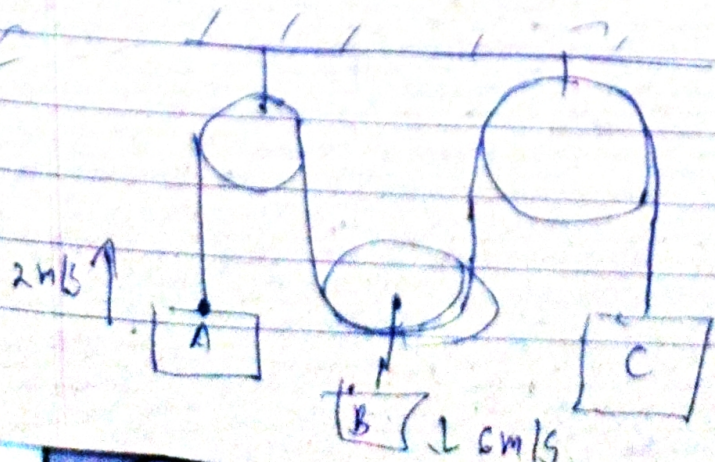
$$\frac{dx_1}{dt} + \frac{dx_2}{dt} = 0$$

जो भी point touch हो रहे हैं उस ओर Mark
: अगर वे Attach length को बढ़ा रहे हैं तो +
और घटा रहे हैं तो - sign लो।

$$-v_A + v_p + v_p - v_B = 0$$

$$\frac{v_A + v_B}{2} = v_p$$

Q.3

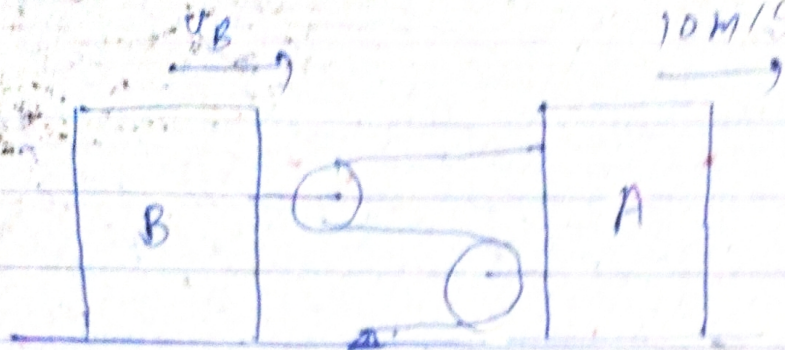


$$-2 + 0 + 0 =$$

$$v_c = ?$$

$$v_c = -$$

10 से आरंभ

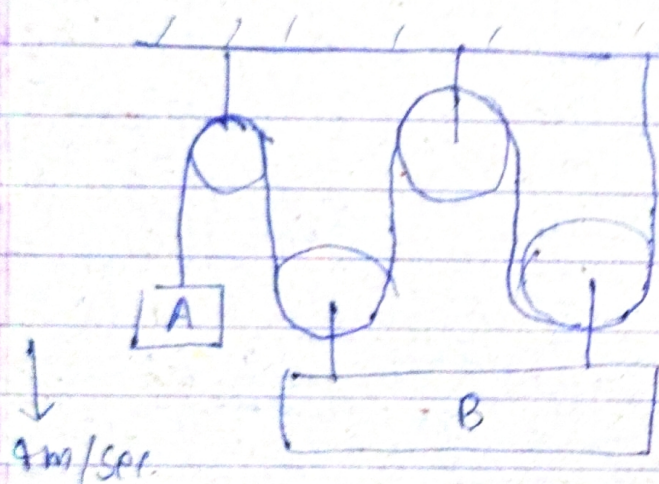


$$10 + v_B + v_B + 10 + 10 = 0$$

$$2v_B = -30$$

$$v_B = -15$$

15 से right की तरफ चल रहा है।

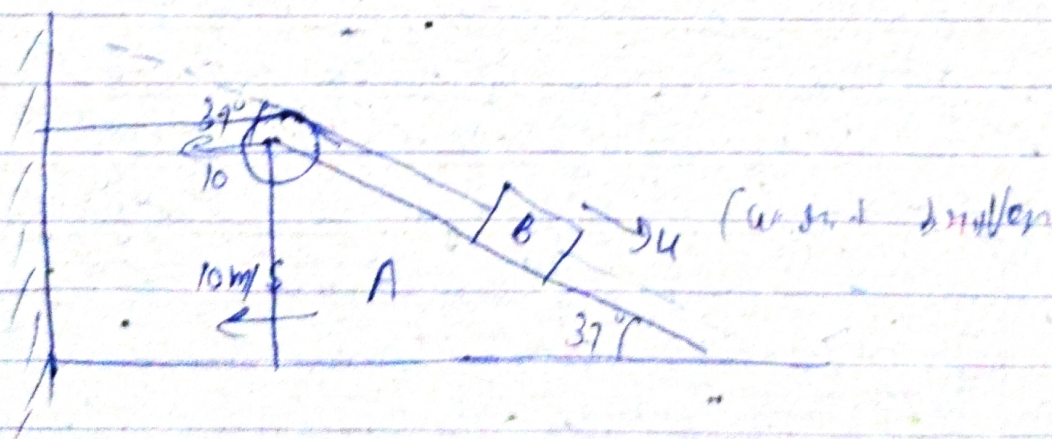


$$4 + v_B + v_B + v_B + v_B = 0$$

$$4v_B = -4$$

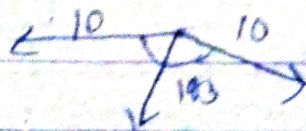
$$v_B = -1$$

B 1 m/s से ऊपर की तरफ है।

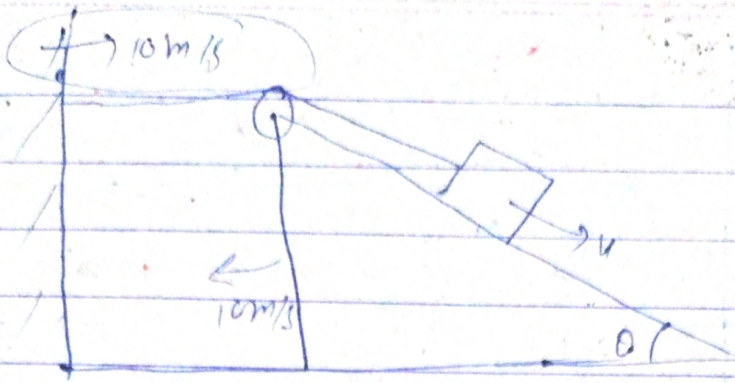


$$0 = -10 + 10 \cos 37 + v + 10 \cos 37 = 0$$

$$v = 10$$



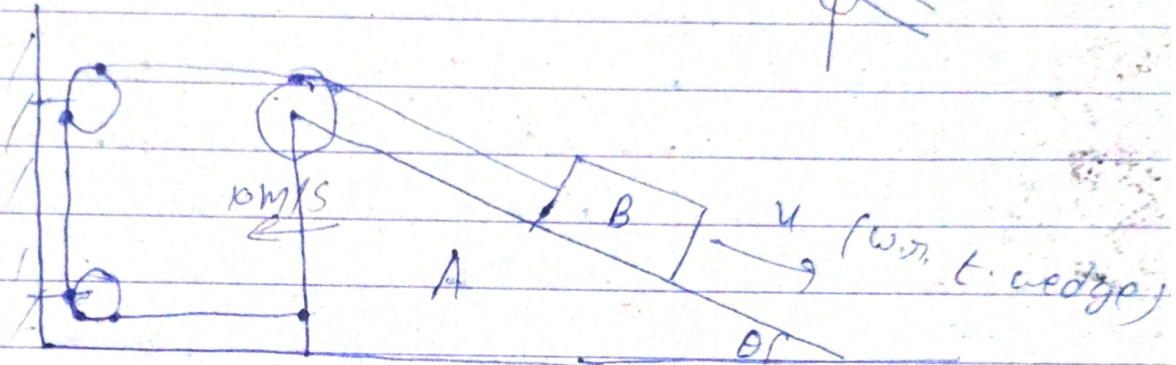
Q1



$$-10 + v = 0$$

$$v = 10$$

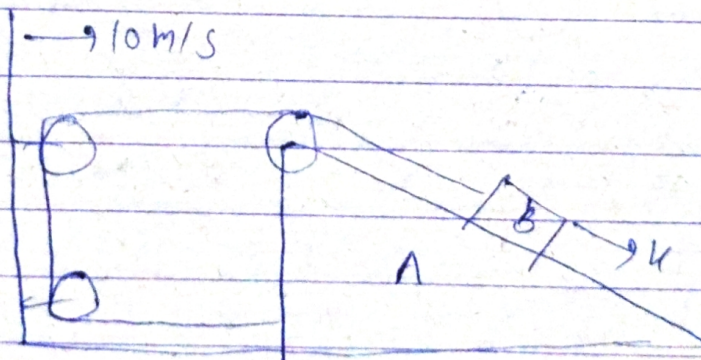
Q2



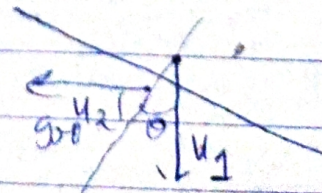
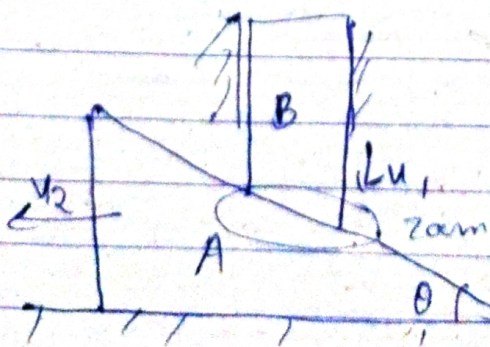
$$-10 + 10 + 0 + 0 - 10 + 10 + 0 + v = 0$$

$$v = 20$$

Anchor chain

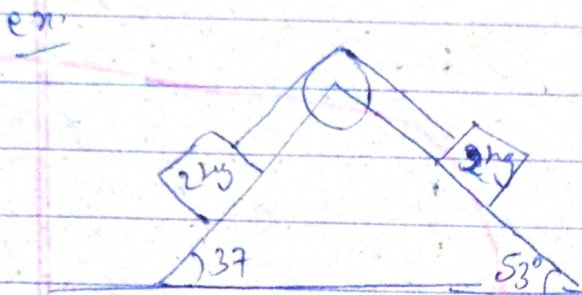


wedge constraint



$$v_2 \sin \theta = v_1 \cos \theta$$

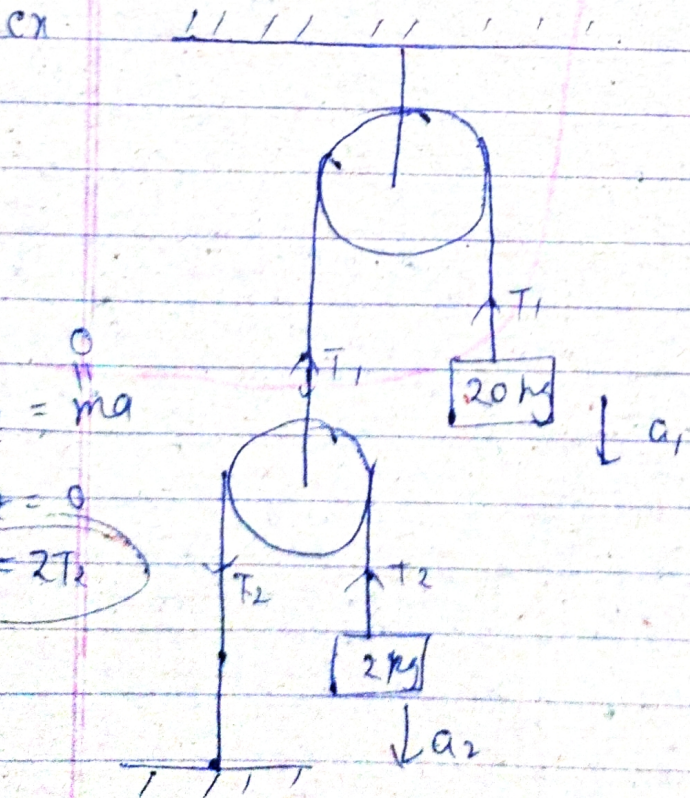
- Two different bodies
- Nature should be same
- Magnitude should be same
- electrostatic force (action-reaction pair)
- direction should be opposite



ex

$$2g \sin 53 = T = 2a$$

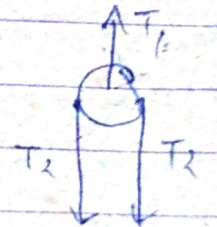
$$T - 2g \sin 37 = 2a$$



$$F_{net} = ma$$

$$F_{net} = 0$$

$$T_1 = 2T_2$$

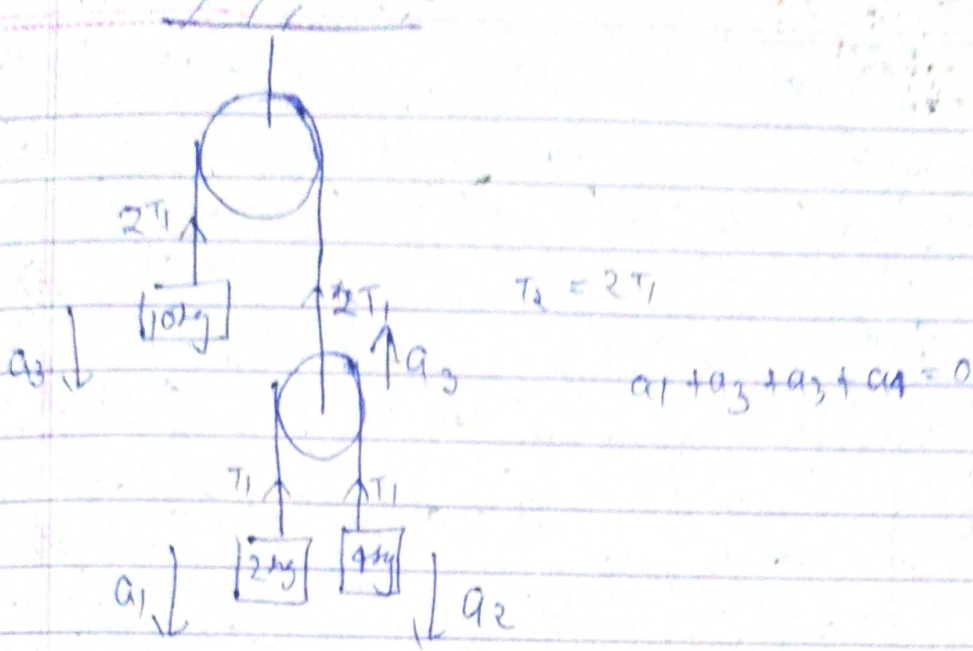


$$T_1 = 2T_2$$

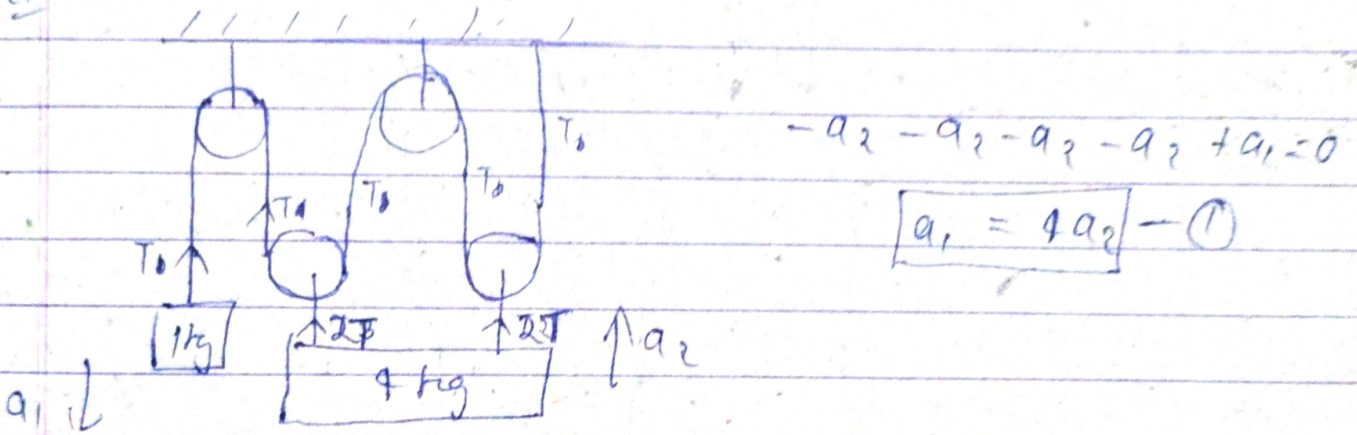
$$0 + a_1 + a_1 + a_2 = 0$$

$$a_2 = -2a_1$$

ex



ex



frames

inertial
 $\vec{a} = 0$

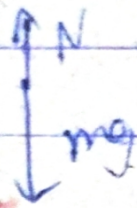
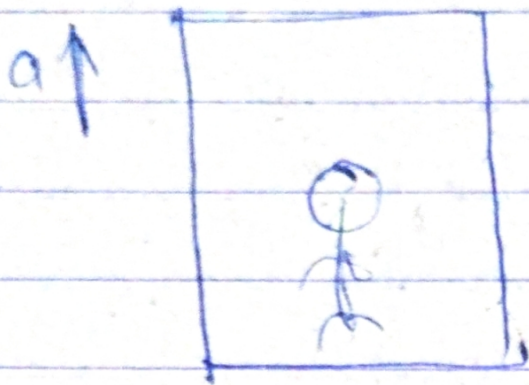
non-inertial
 $\vec{a} \neq 0$

may be constant or variable

* पहला और दूसरा सिमम सिर्फ inertial frame पर लागता है जबकि सि थर्ड सिमम सब जगह लागता है।

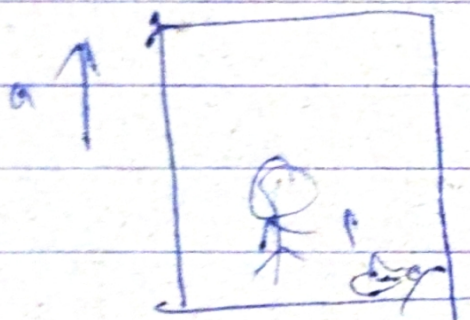
Pseudo: it is the force introduced to apply newton's law in non inertial frame.

Life Problem

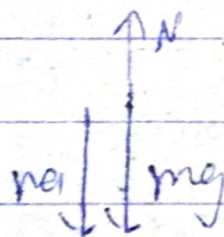


$$N - mg = ma$$

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



फैल (with)



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

अब $a \uparrow$ गति

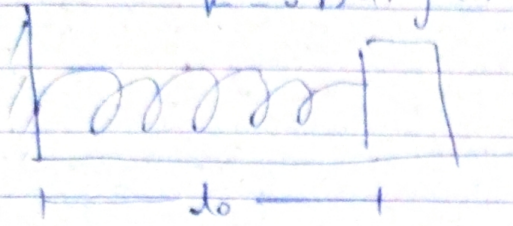
when speed is \uparrow upward or
speed is \downarrow downward

अब $a \downarrow$

when speed is \downarrow upward or
speed is \uparrow downward

Spring force

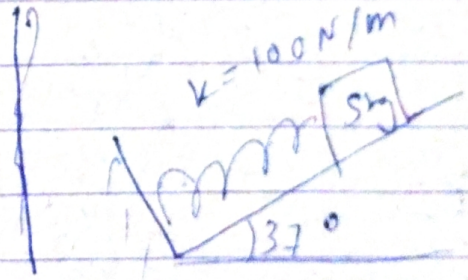
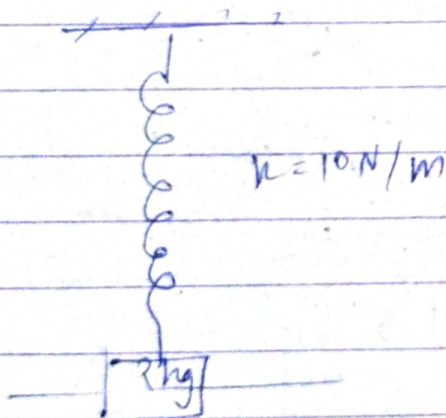
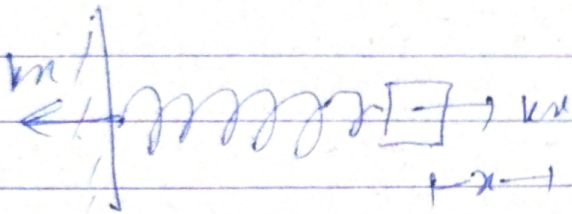
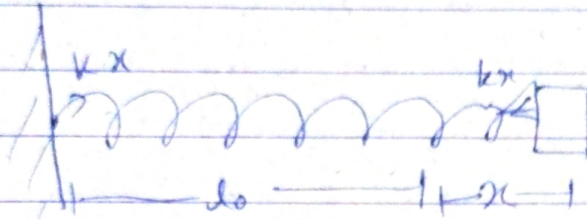
k = spring constant



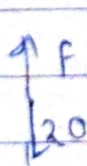
$$F \propto x$$

$$|\vec{F}| = kx$$

$$\vec{F} = -kx$$



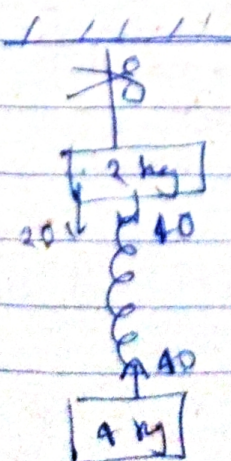
$$5g \cos 37^\circ = 100x$$



$$F = 20 = kx$$

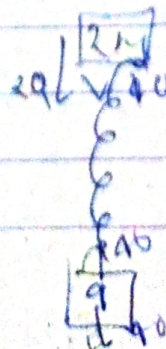
$$10x$$

$$x = 2 \text{ m}$$



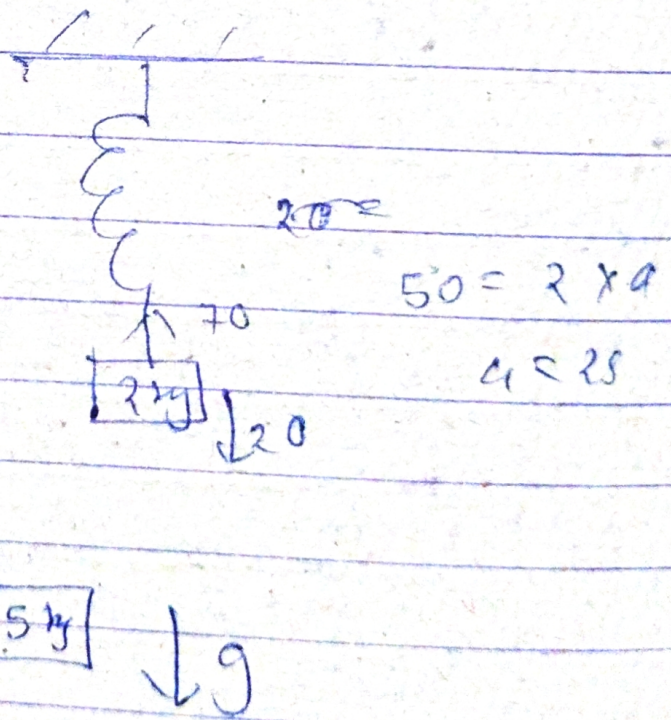
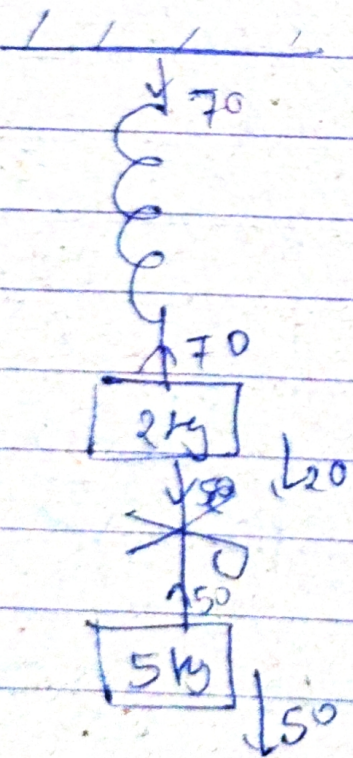
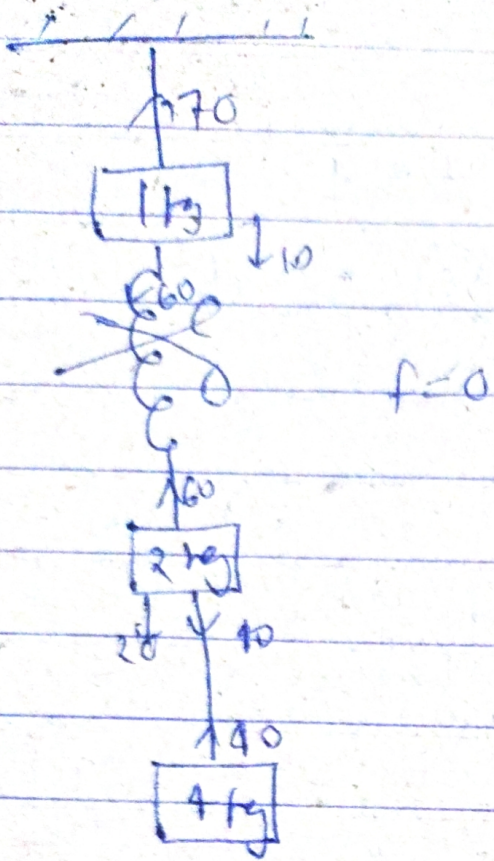
find acc. of 2 kg & 4 kg just after cut

before cut
 $T = 60$

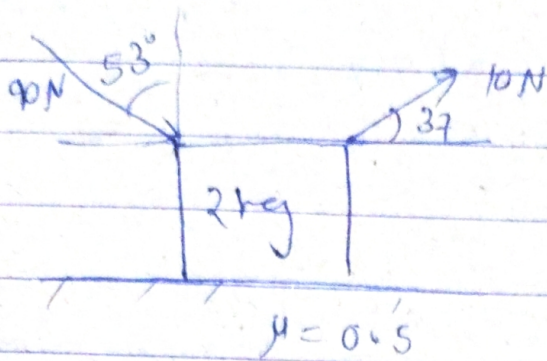


$$a = \frac{60}{2} = 30 \text{ m/s}^2$$

$$a = 0$$



function



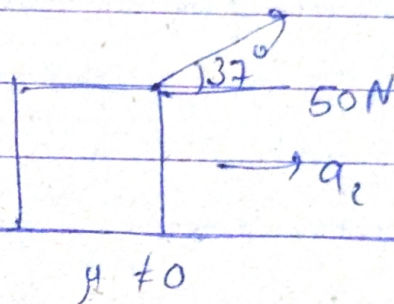
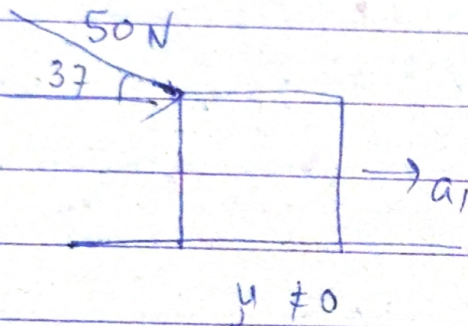
$$10 \cos 37^\circ$$

$$\rightarrow 40 \sin 53^\circ$$

$$\frac{2}{5} \cdot 4 + \frac{4}{5} \cdot 10$$

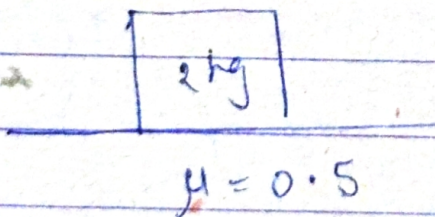
$$32 + 8 = 40 = 2 \times 20$$

$$a = 20$$



$$a_2 > a_1$$

Ans



$$f_{\text{min}} = \frac{\mu mg}{\sqrt{1 + \mu^2}}$$

Ans

