

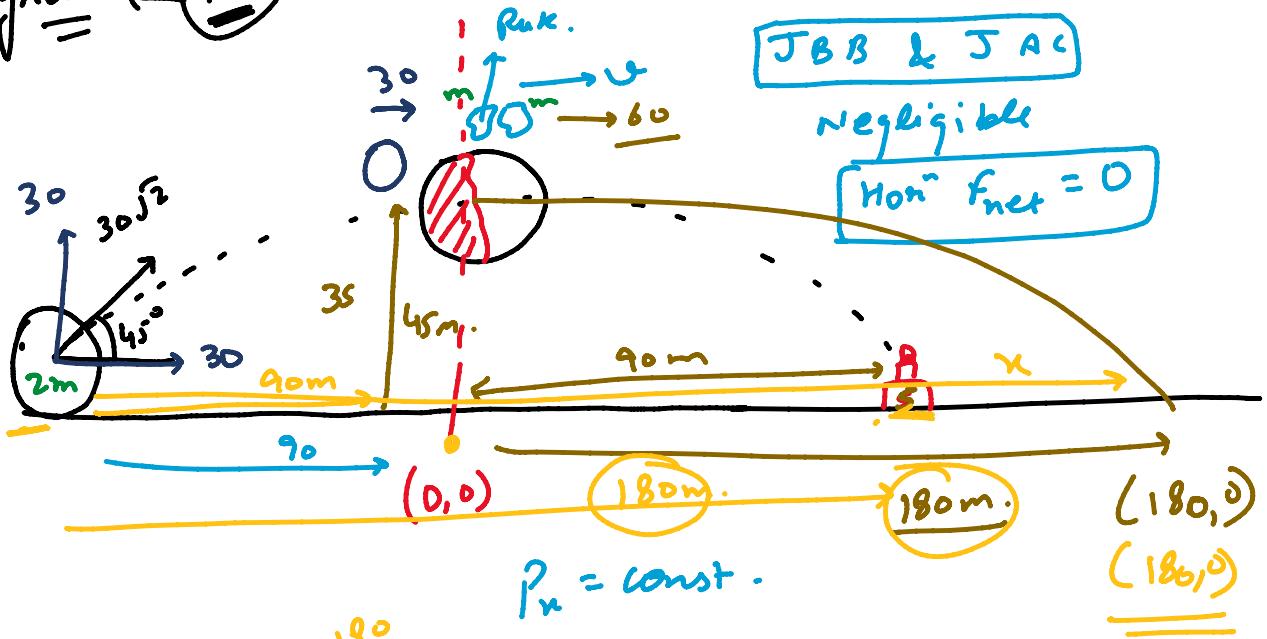
COM

15 October 2020 10:46

Impulsive \rightarrow Large mag., Small time.

mg ignore $\leftarrow kx$

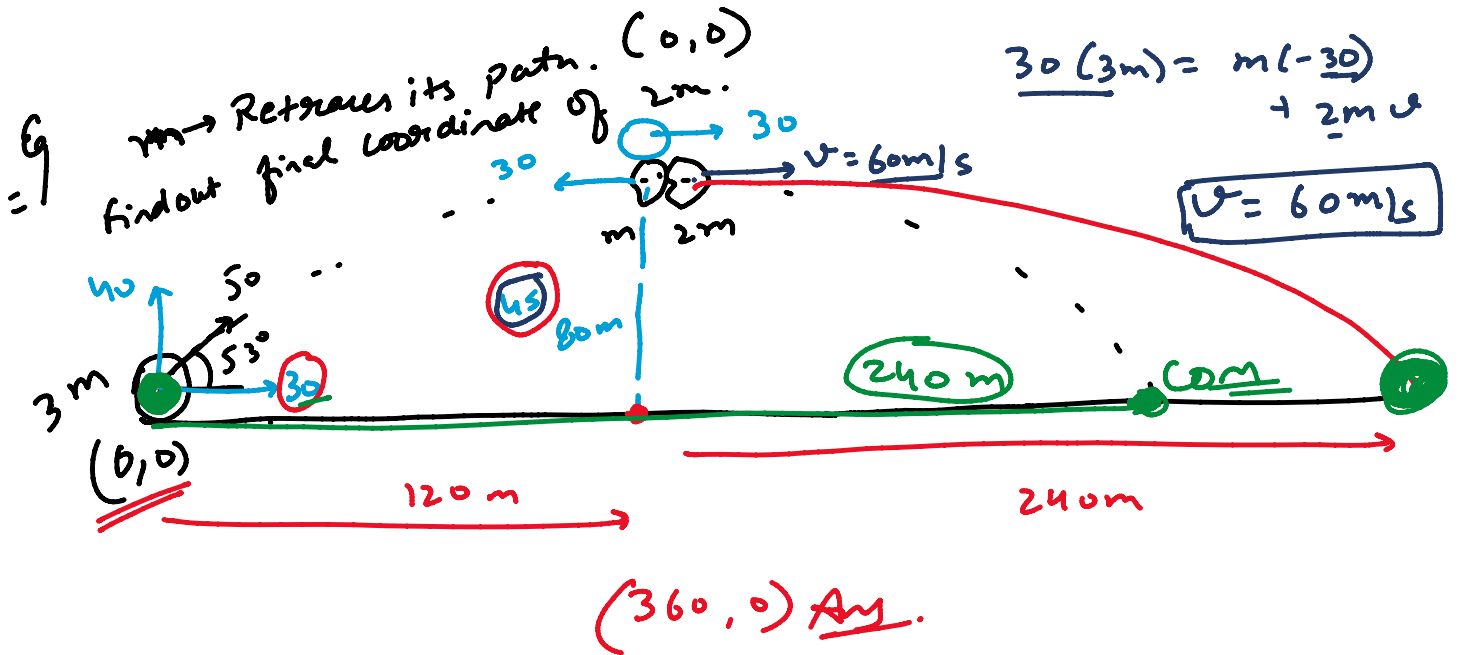
$g = 10$



$R =$
 $H =$
 $T =$

$\frac{m}{2} \cdot 90 + \frac{m}{2} \cdot x = m \cdot 180$
 $x = 270 \text{ m}$

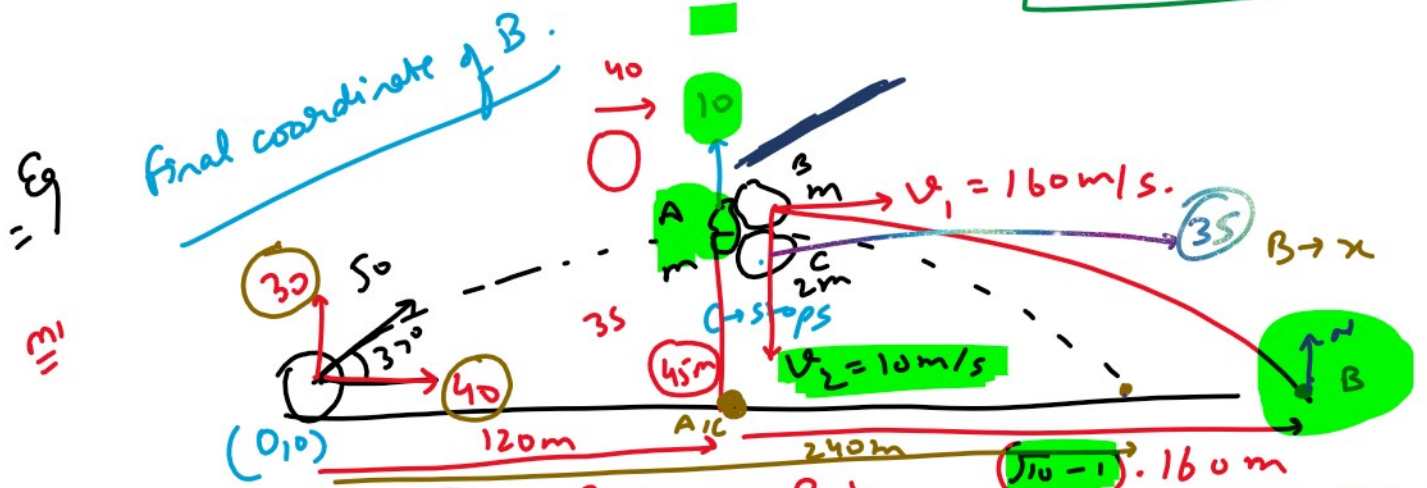
m_2 COM ka path will remain (\neq Twist) same.



m_2 Com ka path same रहेगा.
(*)

$$3m \times 240 = m(0) + 2m \times x$$

$$\boxed{x = 360m}$$



JBT & JAT

$$\textcircled{1} \rightarrow P_x)_i = P_x)_f = (\sqrt{10}-1) \cdot 160m = 2 \cdot 16 \times 160 = 346m$$

$$4m(45) = m(0) + 2m(0) + m v_1 \Rightarrow v_1 = 160 \frac{m}{s}$$

$$\textcircled{2} \rightarrow P_y)_i = P_y)_f \Rightarrow \textcircled{0} = m(10) + 2m(0) - m v_2$$

$$\boxed{v_2 = 10 \frac{m}{s}}$$

$$B \rightarrow y: +45 = +10t + \frac{1}{2} \cdot 10 t^2$$

Ans (466, 0) Am

$$5t^2 + 10t - 45 = 0$$

$$t^2 + 2t - 9 = 0 \Rightarrow t = \frac{-2 \pm \sqrt{4+36}}{2}$$

$$\boxed{t = (\sqrt{10}-1)s}$$

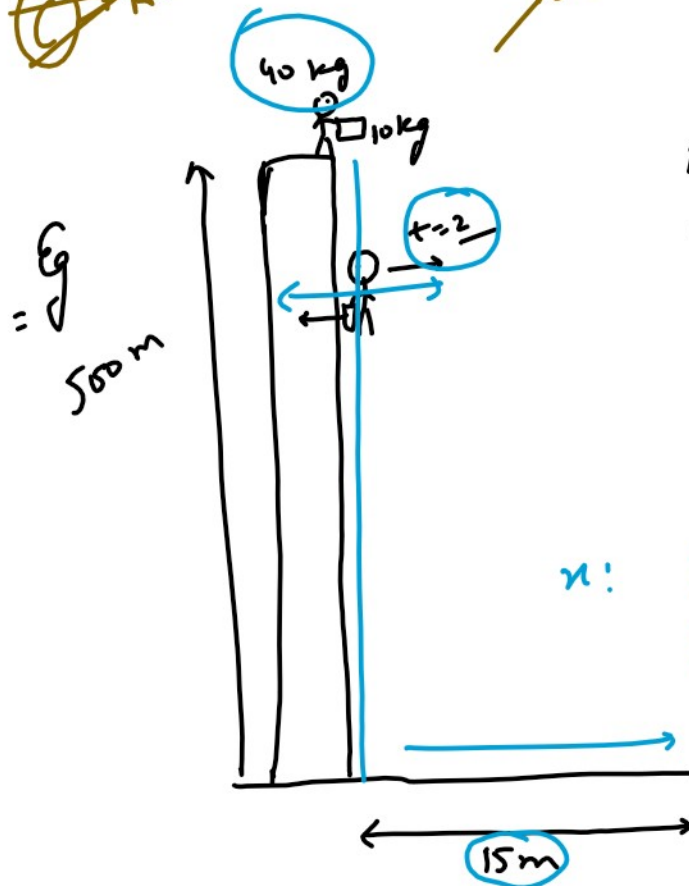
~~m_2 Com ka path same रहेगा.~~

~~$$4m \times 240 = m \times 120 + 2m \times 120 + m \times x$$~~

~~$$960 = 360 + x \Rightarrow \boxed{x = 600m} \textcircled{3}$$~~



(40, 45)



Kitni speed se Briefcase ko fela jaye for safe landing.

10 sec 8 sec

15/8 m/s

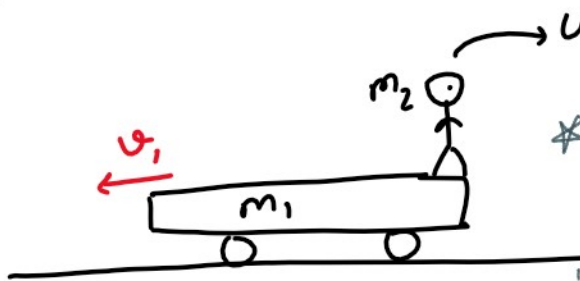
$n: P_i = P_f$

$0 = 10(-v) + 40 \times 15/8$

$v = 7.5 \text{ m/s}$

**
Trolley problems

① Rest.



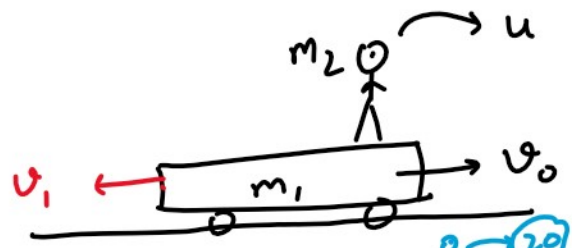
* Agar due mein kuch nahi bataya to 'u' ko after jumping maanna hai.

①.1 u → w.r.t ground.

①.2 u → w.r.t trolley.



②



$P_i = P_f$

②.1 u → w.r.t ground

②.2 u → w.r.t trolley.

②.2.1 Before jump

②.2.2 After jumping

jumping

2.1

$$(m_1 + m_2) v_0 = m_2 u + m_1 (-v_1)$$

2.2.1

$$(m_1 + m_2) v_0 = m_1 (-v_1) + m_2 (u + v_0)$$

2.2.2

$$(m_1 + m_2) v_0 = m_1 (-v_1) + m_2 (u - v_1)$$

