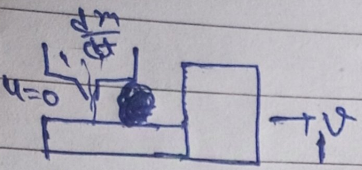
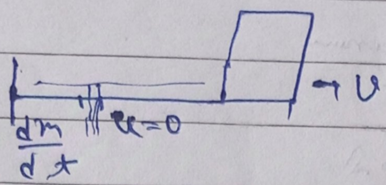
N. L. M.

$\vec{P} = m\vec{v}$ $\quad \vec{F} = \frac{d\vec{P}}{dt}$ $\quad \vec{F} = m\frac{d\vec{V}}{dt} + \vec{V}\cdot\frac{dm}{dt}$ $\quad$ m = const हो $\quad \vec{F} = m\cdot\frac{dv}{dt} = m\vec{a}$

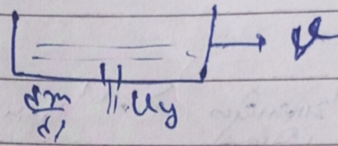


$\vec{F} = -v\frac{dm}{dt}$



$v_{सापेक्ष} = v_{रेत} - v_{ट्रक} = 0$

$F = 0$



$F_{रेत} = -u_y\frac{dm}{dt}\hat{j}$

$\frac{dm}{dt} = -ve$ हो तो $F = +ve$

तरल द्वारा पाइप पर प्रतिक्रिया बल

$F = \rho A v^2$

रॉकेट प्रणोदन

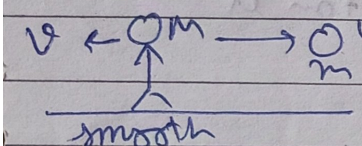
$F_{thrust} = v\frac{dm}{dt}$ $\quad v$ = गैस का वेग

$F_{net} = F_{th} - mg$ $\quad a = \frac{v\frac{dm}{dt} - mg}{m}$

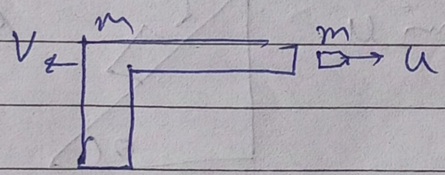
आवेग

$I = \Delta P$

संवेग संरक्षण

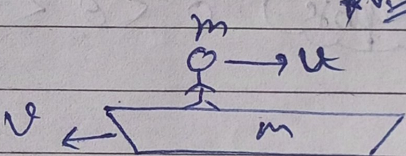


$v = -\frac{mu}{M}$



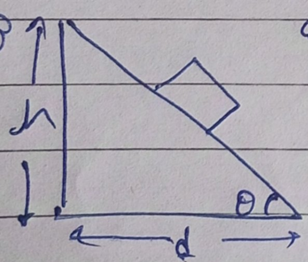
$v = -\frac{mu}{M}$

★V. V. Imp★



$v_{BG} = \frac{mu}{M+m}$

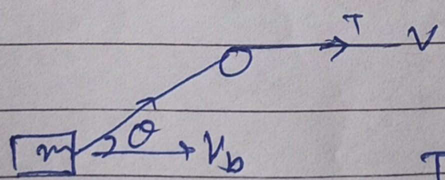
नत तल



धरातल पर पहुँचते समय चाल $v = \sqrt{2gh}$

$t = \sqrt{\frac{2s}{a}} = \frac{1}{\sin\theta}\sqrt{\frac{2h}{g}}$

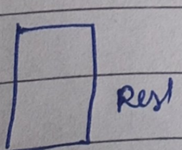
गति बाधित गति



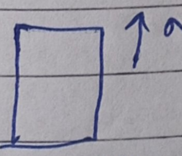
~~T.Vb~~ $T\cdot V_b + T\cdot V = 0$

$T\cdot V_b\cos\theta + T\,V\cos 180 = 0$

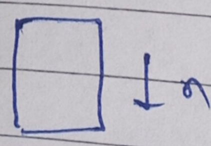
लिफ्ट की गति



$N = mg$



$N = mg + ma$



$N = mg - ma$

ઘર્ષણ

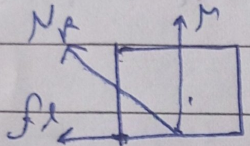
f_s સ્થિત $= F_{ext}/applied$ $\qquad f_l = \mu_s N$ $\qquad$ ગતિક ઘર્ષણ → $f_k = \mu_k N$

$\uparrow$ maximum $\qquad\qquad\qquad\qquad \uparrow$ const.

$\mu_{\text{આરંભિક સ્થિત}} > \mu_{\text{સરકતી}} > \mu_{\text{ગતિક ની}}$

લોટણિક ઘર્ષણ

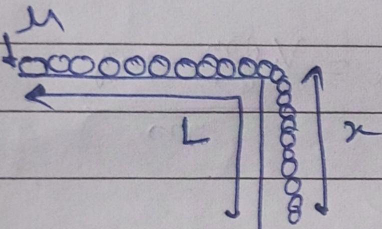
$f_{\text{સ્થિત}} > f_{\text{ગતિક}} > f_{\text{લોટણિક}}$



$N_{min} = mg$

$N_{max} = mg\sqrt{1+\mu^2}$

f_{min} ફોર માટે $\qquad f_{min} = \dfrac{\mu m g}{\sqrt{1+\mu^2}}$

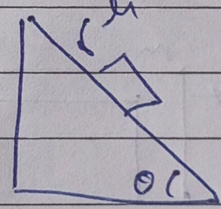


ચેઈનની મહત્તમ લટકતી લંબાઈ માટે શરત

$$\frac{x}{L} = \frac{\mu}{1+\mu}$$

Angle of Repose

$0 < \theta < \tan^{-1}\mu.$



$\theta = \tan^{-1}\mu$