29/08/22 6. Focition 11 = coefficient of feriction Holeizontal subjace Kinetic feriction: N=mg part porton fr= ULN F= Ukmg+ma ocetanding force: the Uning ma= Uhmg $a=-u_{k}g\Rightarrow vetaridation$ Stopping distance: $S = \frac{u^2}{2u_k q}$ stopping time: $t = \frac{u}{u_k g}$ scalling fuction a (Youdier of scalling body) & angle of fuction (\$) = u= tanp contact force $f_c = N \sec \phi$ $R = \sqrt{b^2 + N^2}$ Relation blev kinetic, septational, static feiction for & fre fs - to independent on area of contact. More Alke Ms A block of massim, is intially at elest, we applied a force F along horizontal direction case! If f I fy then body is at seit ts=f If F = FL then body is enady to slide If F > fr then body is in motion few tional force case3: fx = Ux N F-fk= ma F= Mumg+ma Chain is seedy to slide then man of hanging part = mg

mass of chain lying on table = mg(1-1/n) I is length of hanging poort & length of chain $\frac{\mathcal{L}}{\mathcal{L}} = \frac{\mathcal{U}_S}{\mathcal{U}_S + 1} \times 100^{\circ} / \cdot$ Pulling: mg sind Cos (O-p) Pushing: mgsind Cos (0+0) Consider a block of mass m' is placed on a touck at a distance I fewom Its succee end. casel: ma < fr, fs=ma, a=elg case 2: mas for block is in motion out the - Men - Meng for acceleration a'= a-ukg block leaves the touck in a time t $t = \sqrt{\frac{2I}{\alpha - u_{eq}}}$ a = (us-un)g Contact with fewert point of touch so that the block should not fall acceleration is 1 It has to a good a = 18/11 Vertical surface A block of man is powered against wall without falling fs = mg N=F USN zmg F= mg a= mg-fx A block peressed by 2 hands $mg = 2fs \Rightarrow f = \frac{mg}{2us}$

Min force applied parallel to the wall body move T Finin = (mg+f) = (mg+UN) = (mg+UF) Min work done to move up the body to saysance son W= fmin S = (mg+f)S F= mg maled y (BIND+MCOID) Fond Forp E= Mef FP MPF MAMO Mp + Ma Connected bodies My ma $\alpha = \left(\frac{m_2 - \mathcal{U}_k m_i}{m_i + m_i}\right) q$ Termion 7= m2 mg (1+Mx) upper Bock F= T+f => timg+T on lower block T= Mmg F= 2 umg $a = F - (f_1 + f_2)$ Deathwell Ms mouw2=mg max time of sevalution T= 211 UIR Motion of a body on smooth inclined plane N=mgcoso significant force acting on the block to side down the block F=mg tino

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next ferom top of the
of body is decleared face indination o, inclined length
A body is dieleased forom sich of inclined length smooth inclined plane of inclination of inclined velocity becomes v at bottom of
I If body takes I see velocity becomes v at bottom of
the plane
the plant V= Jaglino
$t = \frac{21}{2}$
$J = \sqrt{\frac{21}{9500}}$
Motion of a body on seough inclined plane
Angle of suppose (ϕ) : $tan \phi = us$
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transport to the state of the s
Consider a day of man in is price of name of
on a stough inclined plant of mg
Consider a body of man in is peresent inclined plane of mg inclination of
(all the state of
Casel: mg smo c fe
to = md mo
Case 2: mg in 0 = fc body is neady to stitle
At umg cos o
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case3: mg 1800 > to 1811 - 7 = 10 000 to 1810
A. Vo
fr = UkN 1974 mg
fr= Uhmgco10 Woulder
F=mg(sino-ukcoso)
a= g (sino-ux coro)
And X Line of December of the State of the S
W= mg1 (sino-ux coso)
A body of mass m is excleased become top of
indined plane
indined plane $V = \sqrt{291 (8m0 - 11_k \cos 0)}$
1 Jacomo - Mik (asa)

time
$$t = \sqrt{\frac{2l}{g(nno-\mu_k(ono))}}$$

Time taken for body to stide down on smooth indired

$$t = \sqrt{\frac{2l}{g \sin \theta}}$$

$$\sqrt{\frac{21}{g \ln 0 - 1 \ln \cos 0}} = n \sqrt{\frac{21}{g \ln 0}}$$

$$2 \ln 2 \tan 0 \left(\frac{n^2 - 1}{n}\right)$$

Block on Block

$$(a_2)_{\text{max}} = \frac{1}{M_2} = \frac{uM_29}{M_2} = ug$$

mooth
$$(a_1)_{max} = \frac{1}{M_1} = \frac{\mu M_2 q}{M_1}$$

$$F = (M_1 + M_2) (a_1)$$

$$F = (M_1 + M_2) (a_1)_{common}$$

$$F = (M_1 + M_2) \frac{\mu M_2 q}{M_1}$$

Sliding of chain

$$u = \frac{\text{hanging part}}{\text{remaining part}} \quad u = \frac{\chi}{L - \chi}$$

$$\chi = \frac{uL}{u+1}$$

connected pulleys ten to tal 49+202+03+04=0 $f_{\text{limit}} = \int_{\mathbb{R}^{d}} \frac{e^{t}}{\theta n \theta}$ Belt of it as Wron= (Irramaboue P) × gett T= Iman above P) × get if steeling is margles then T = (m+m), $7 \times B = 2 \times A$ $1 \times A \times B = 2 \times B$ $1 \times A \times B = 2 \times B$ $2 \times B = 2 \times B$ $3 \times B = 2 \times B$ $4 \times$ occorres (10) (MM) = 3 Station of chain X-1 = 11

Sant ou 19/ or As 1