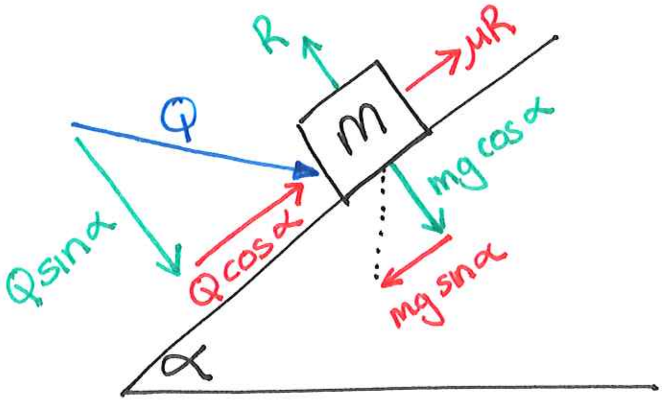
– EQULIRIUM / STATIC + SLOPES

Breakdown into components that are parallel and perpendicular to the SLOPE.



on point of slipping down slope

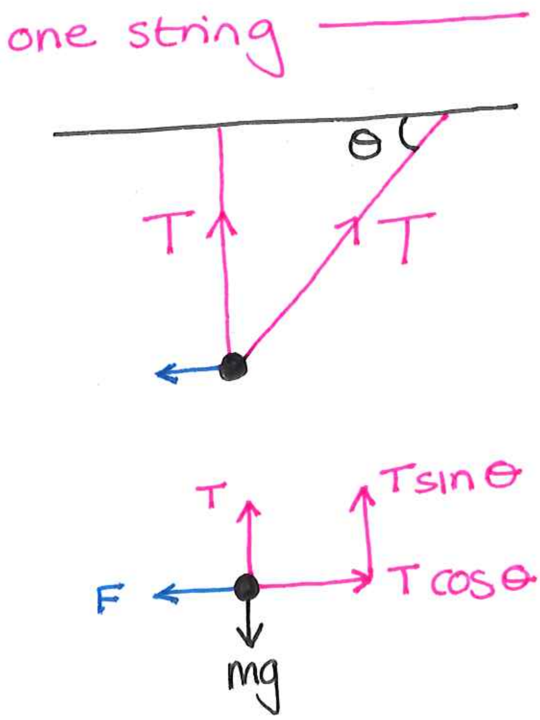
∴ ↗ Friction

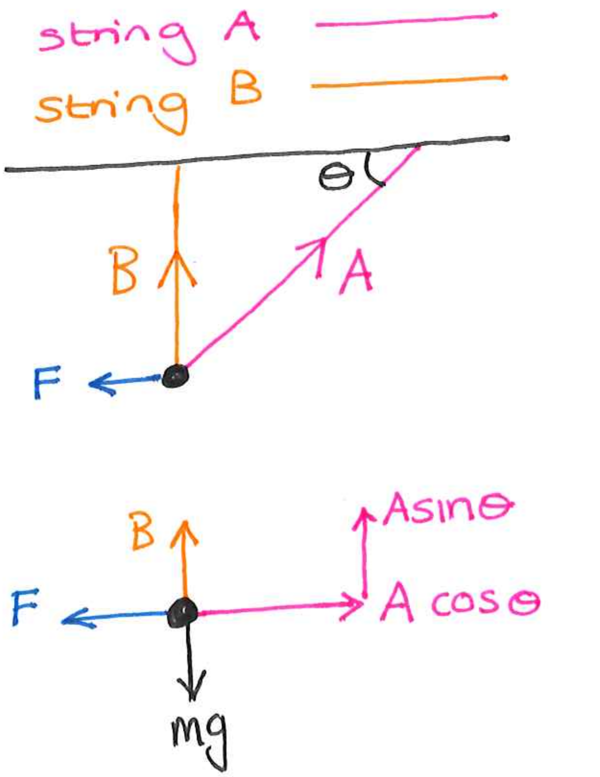
$$Q\cos\alpha + \mu R = mg\sin\alpha$$

$$Q\sin\alpha + mg\cos\alpha = R$$

– EQULIRIUM / STATIC + HANGING

Watch out for ONE STRING or TWO SEPRATE STRINGS

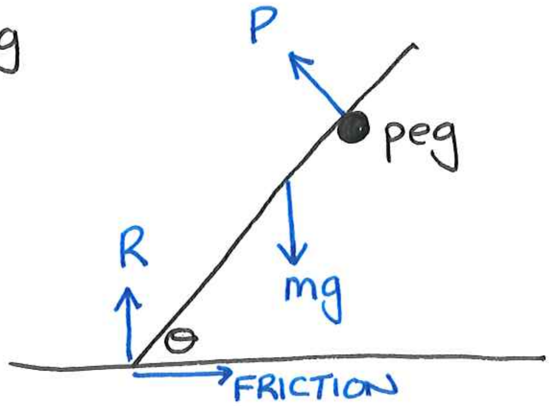


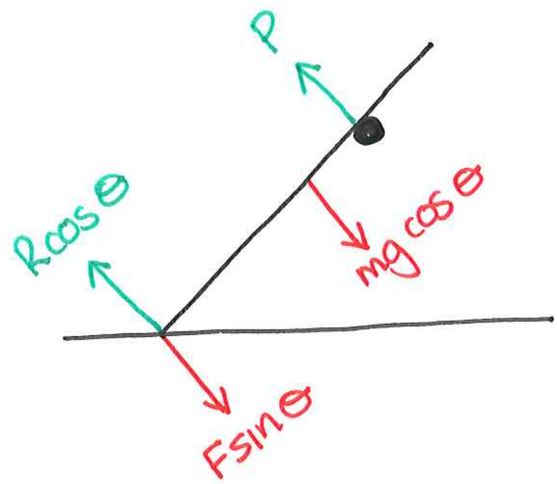


– STATIC RIGID BODIES

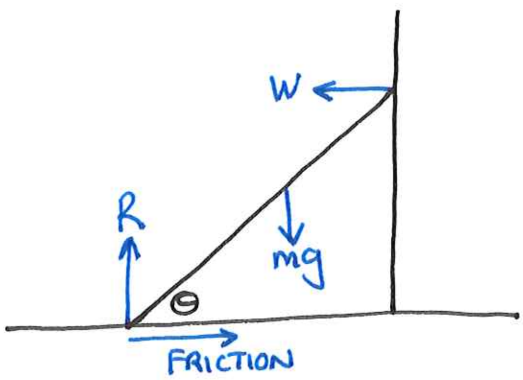
LADDERS

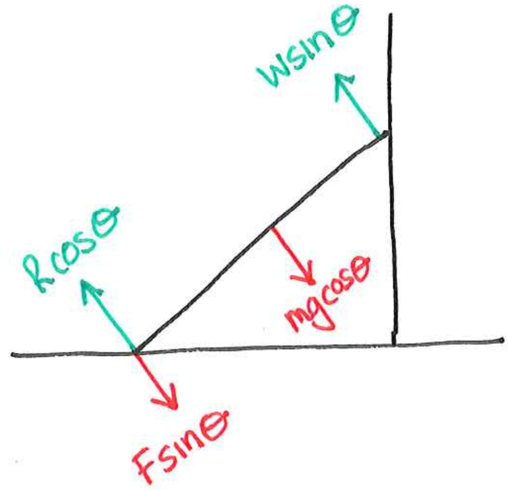
– Peg



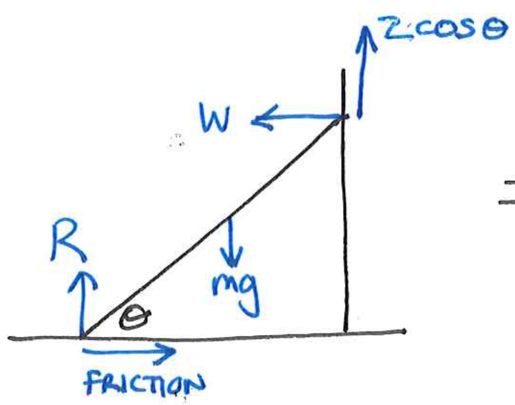


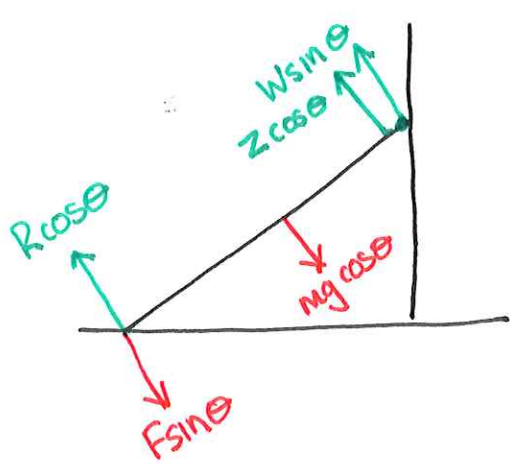
– Smooth Wall + Rough floor





– Rough Wall + Rough Floor

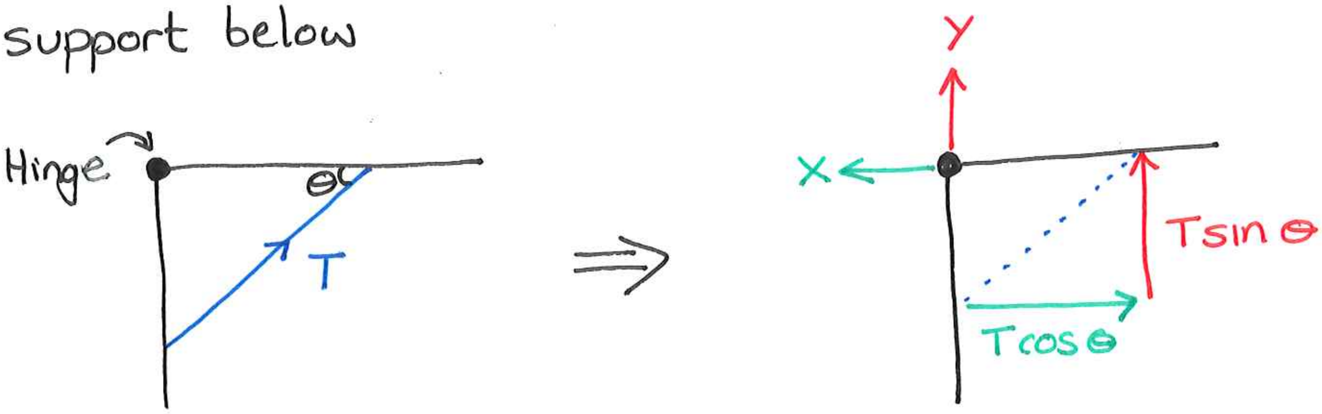




– STATIC RIGID BODIES

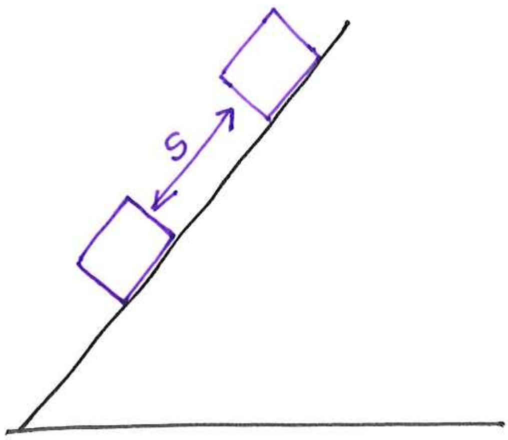
HINGES

– support below



– support above

– DYNAMICS AND FRICTION



$F = ma$

is good for finding acceleration.

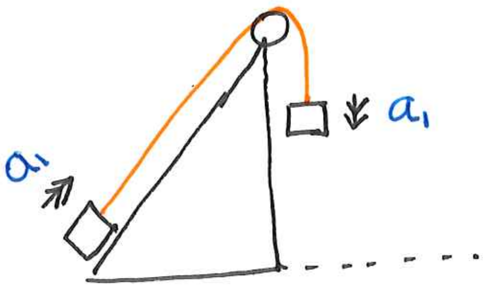
Then use SUVAT

$v = u + at$ $\quad$ $v^2 = u^2 + 2as$

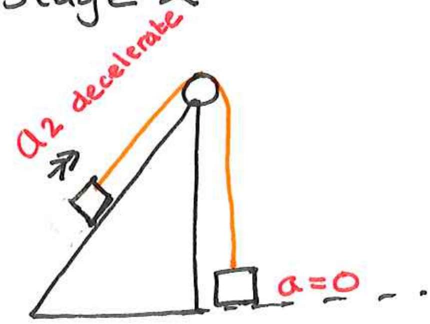
$s = ut + \frac{1}{2}at^2$ $\quad$ $s = \left(\frac{u+v}{2}\right)t$

– CONNECTED PARTICLES + PULLEYS

stage 1

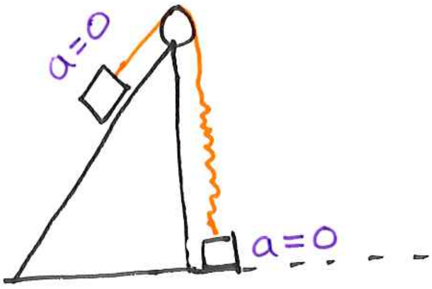


stage 2

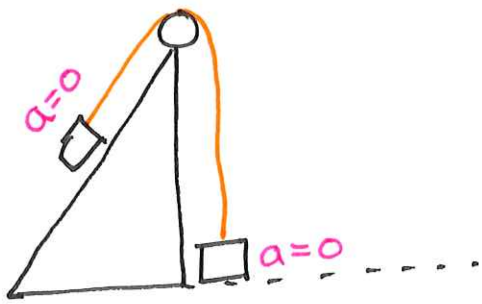


V stage1 = u stage 2

stage 3

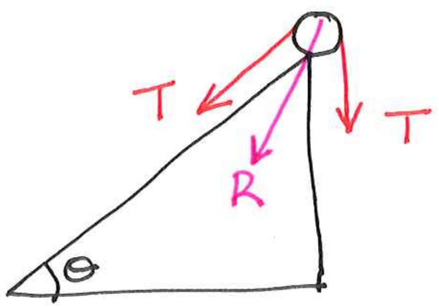


stage 4



- F = ma is good for calculating ACCELERATION
- SUVAT is good for SPEED, TIME + DISTANCES
- Once string goes slack driving force is ZERO

– FORCE EXERTED ON PULLEY



$$R = 2T\cos\theta$$