

EQUATIONS OF MOTION

TRANSLATION: i.e. all parts of a body

undergoing TRANSLATION have the same acceleration.

⇒ no rotation about c.o. gravity

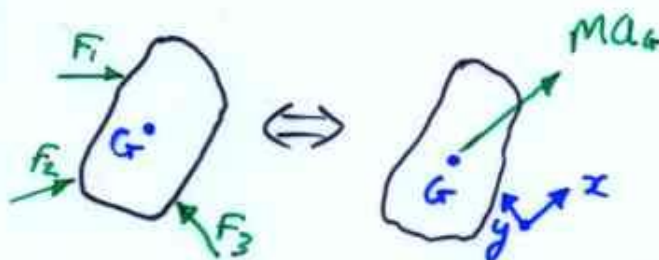
⇒ $\Sigma M_G = 0$ and of course: $\Sigma \vec{F} = M\vec{a}_G$

TRANSLATION may be RECTILINEAR or CURVILINEAR

RECTILINEAR Translation:

all points move in straight lines

CONVENIENT TO PUT x-axis parallel to \vec{a}

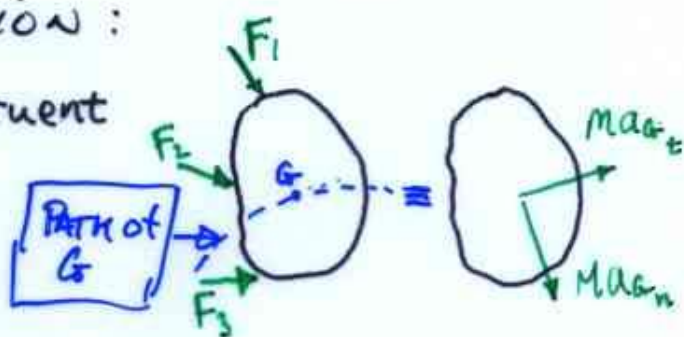


CURVILINEAR Translation:

all points move on congruent curved paths

convenient to use components normal & tangential to path of G

& tangential to path of G



$$\Sigma M_G = 0, \quad \Sigma F_n = M a_{Gn}, \quad \Sigma F_t = M a_{Gt}$$

Note that other points can be used as moment centres?