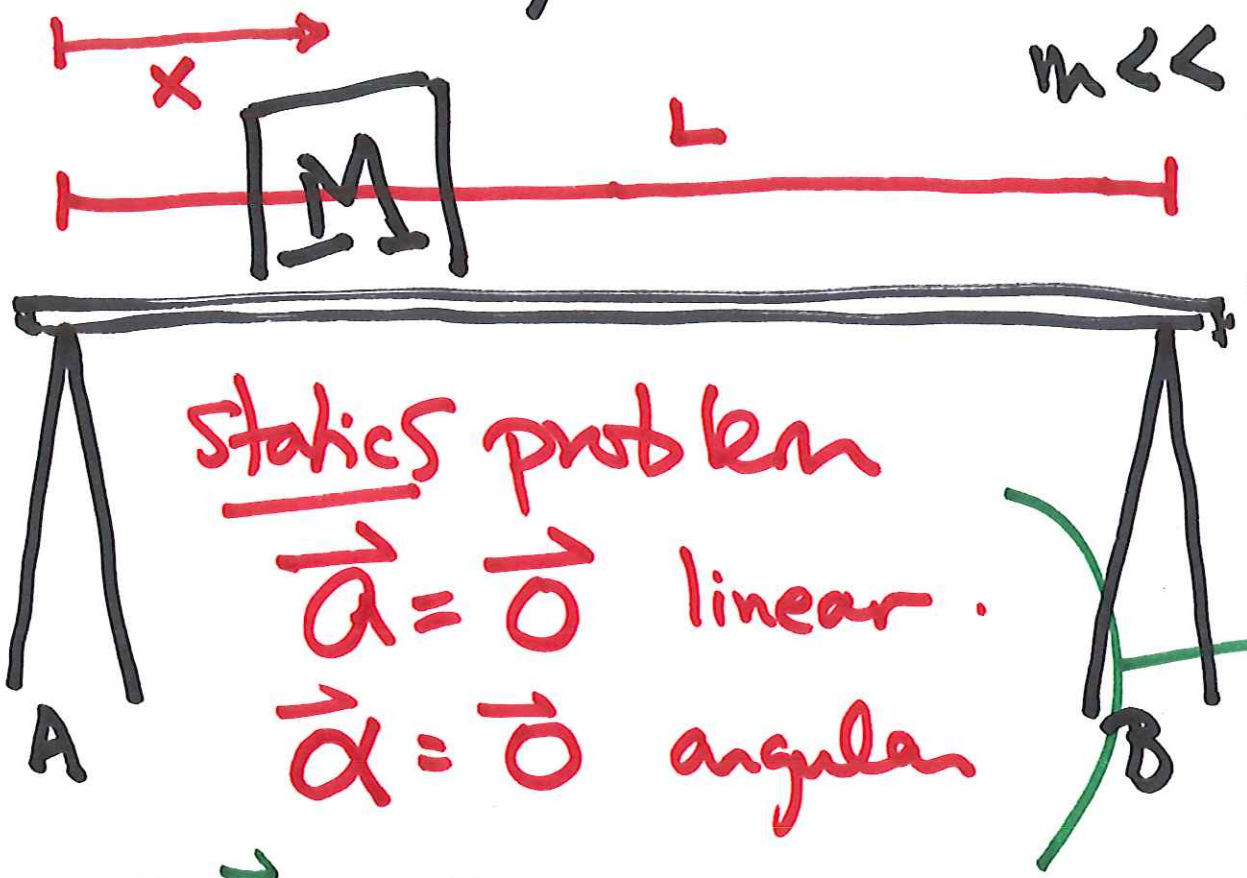
NYU Physics I 2018-10-16

- http://dwh.gg/201810
- block on table.
- Khan Academy.

- Torque.
- Simple Harmonic Oscillator
- Reading.
  (OpenStax)
  ↳ Uni. Phys.

block → anvil on a light table



statics problem

$\vec{a} = \vec{0}$ linear.

$\vec{\alpha} = \vec{0}$ angular

kinematic constraint

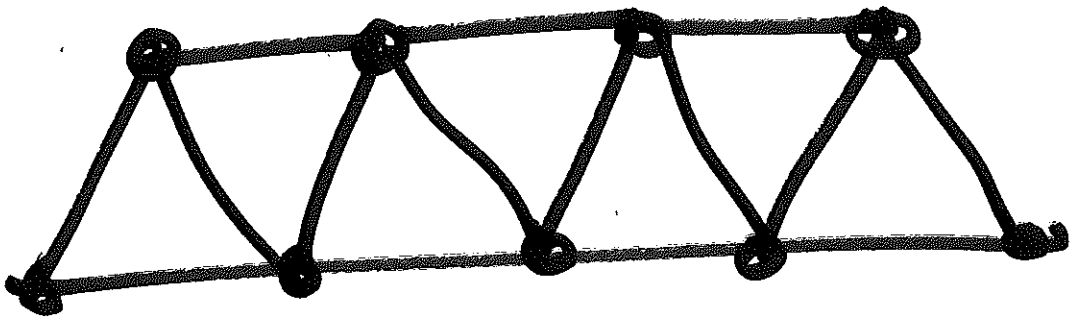
something you know about the motion

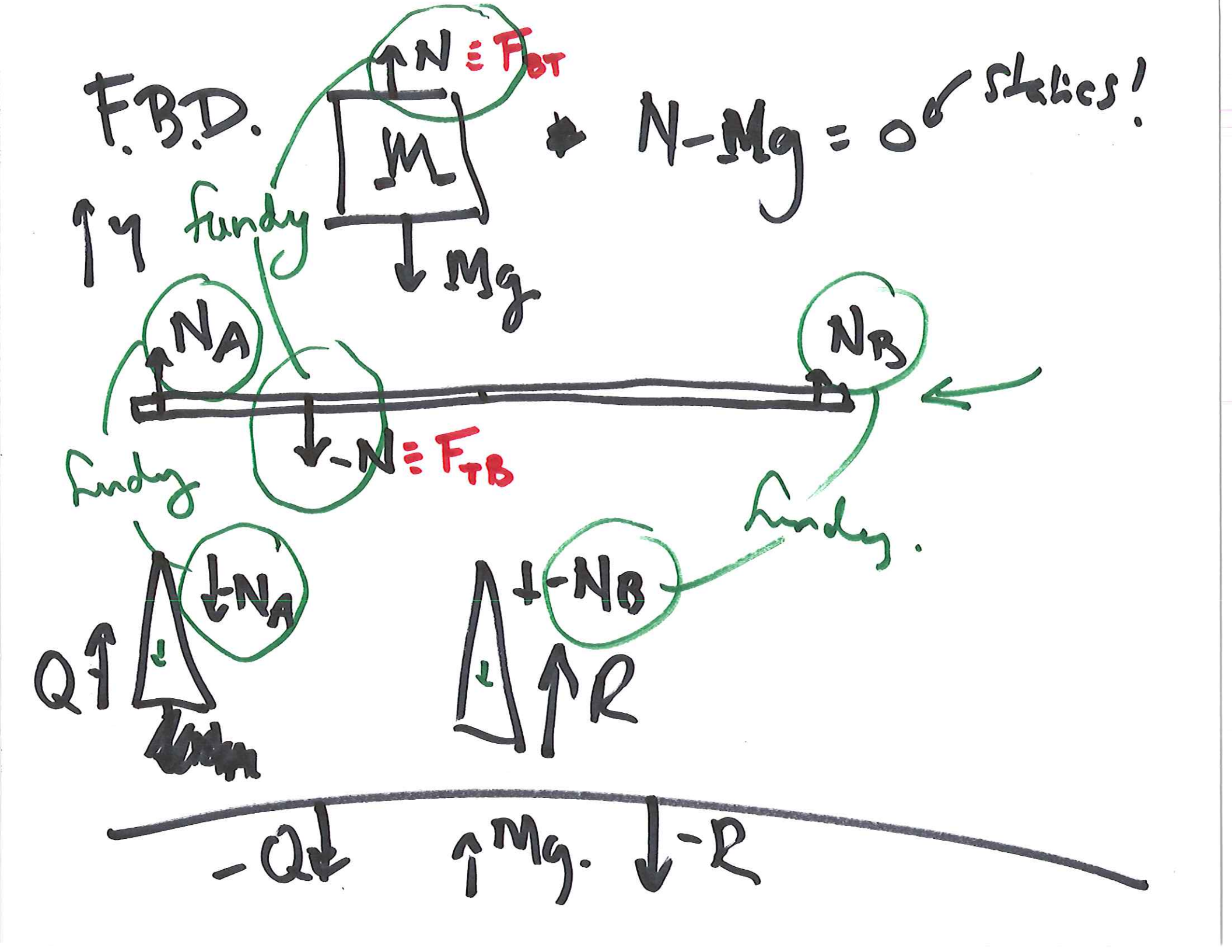
① $\sum_i \vec{F}_i = \vec{0}$ for all objects

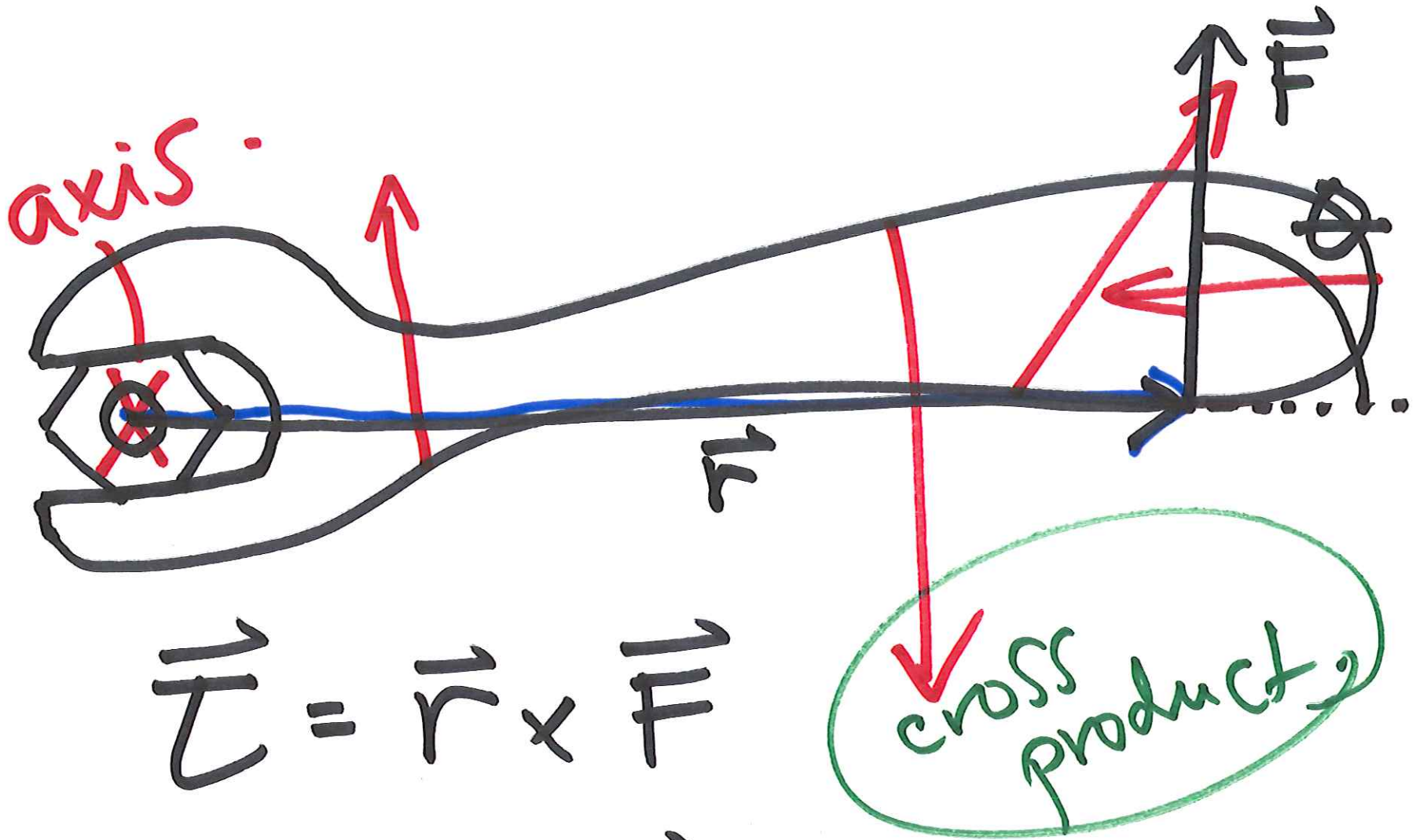
② $\sum_i \vec{\tau}_i = \vec{0}$ for all objects.

"cross products"

torque is a pseudo-vector pseudo.



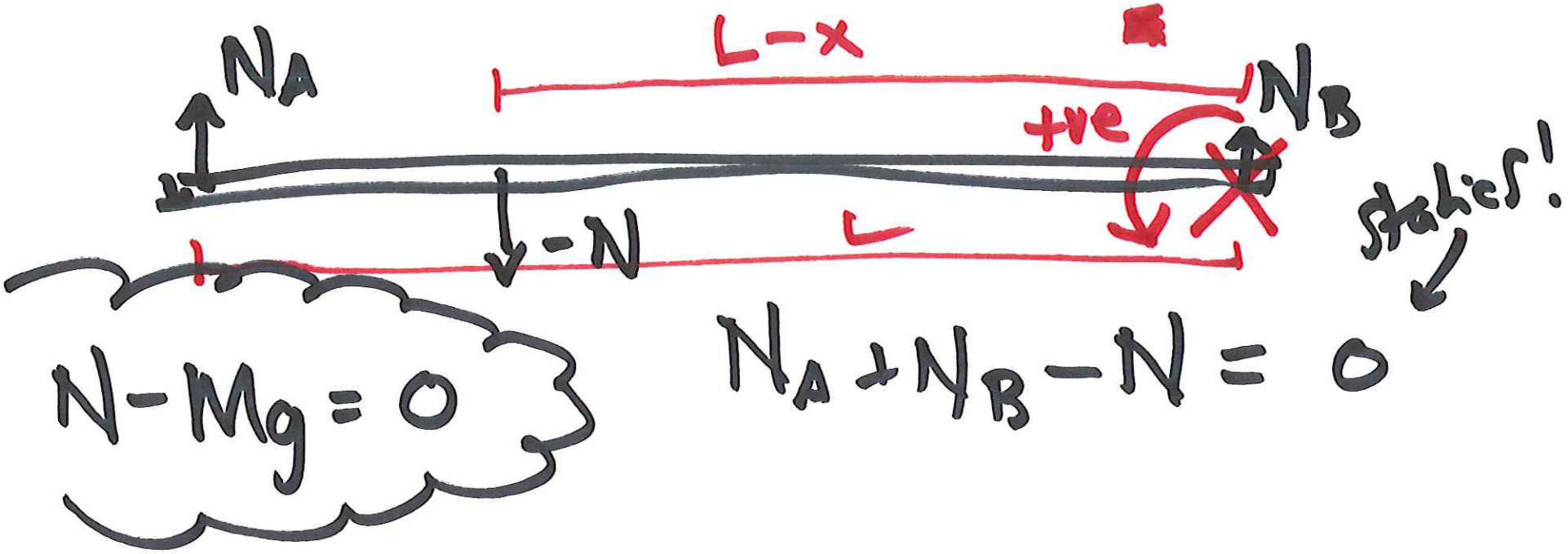

F.B.D.
N ≡ F_BT
M
Mg
+ N - Mg = 0 or statics!
↑y fundy
N_A
N_B
-N ≡ F_TB
fundy
fundy
fundy.
+N_A
+-N_B
Q
R
-Q
Mg.
-R



$$\vec{\tau} = \vec{r} \times \vec{F}$$

cross product

$$|\vec{\tau}| = |\vec{r}|\,|\vec{F}| \sin\theta$$



$N - Mg = 0$

$N_A + N_B - N = 0$

$\tau_A = L N_A \sin\theta = L N_A$

$\tau_M = (L-x) N \sin\theta = (L-x) N$

$(L-x) N - L N_A = 0$ ← statics!!