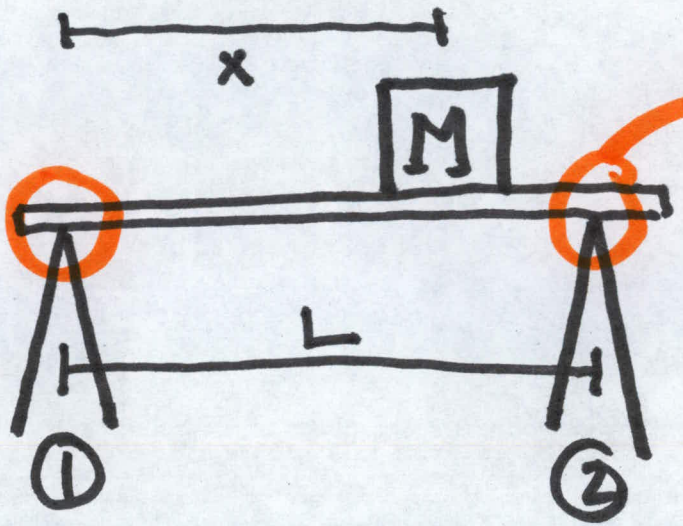


contact forces?

light table

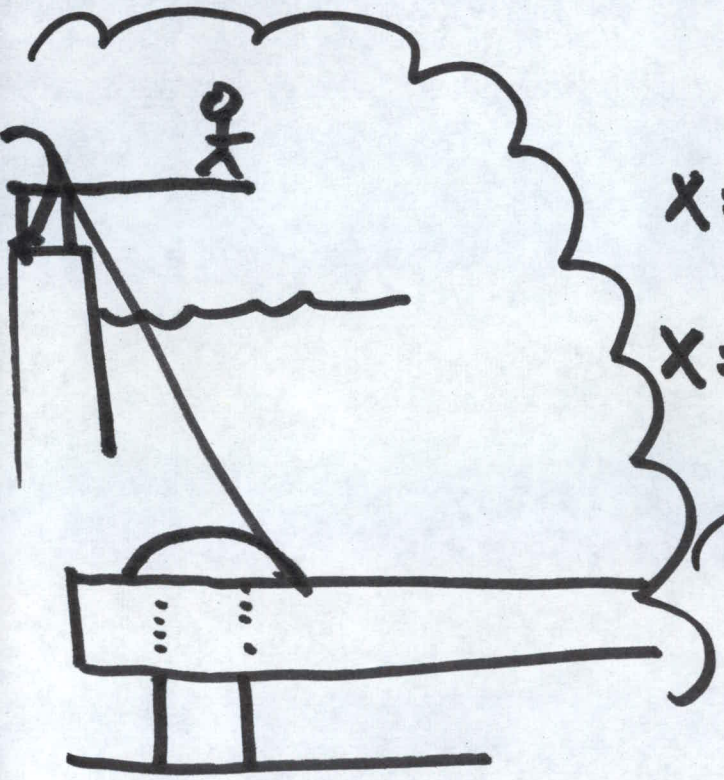
mass can be ignored.

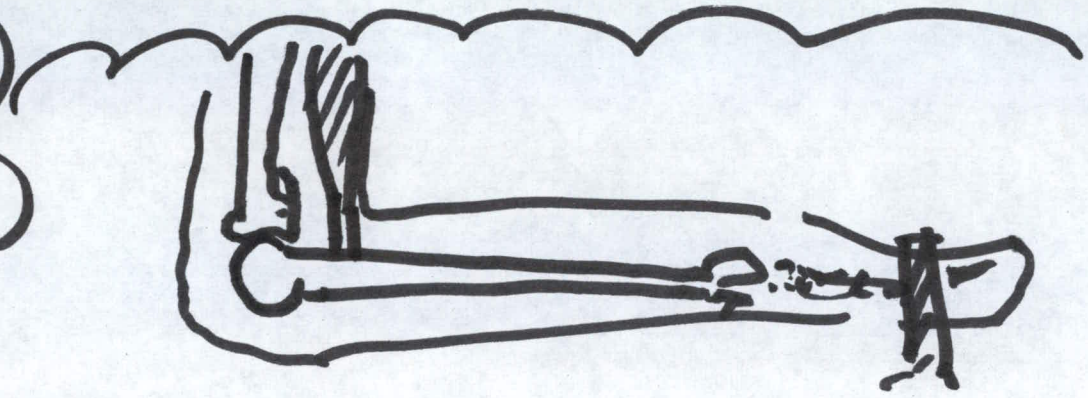
guess: if $x=0$ $N_1 = Mg$ $N_2 = "0"$

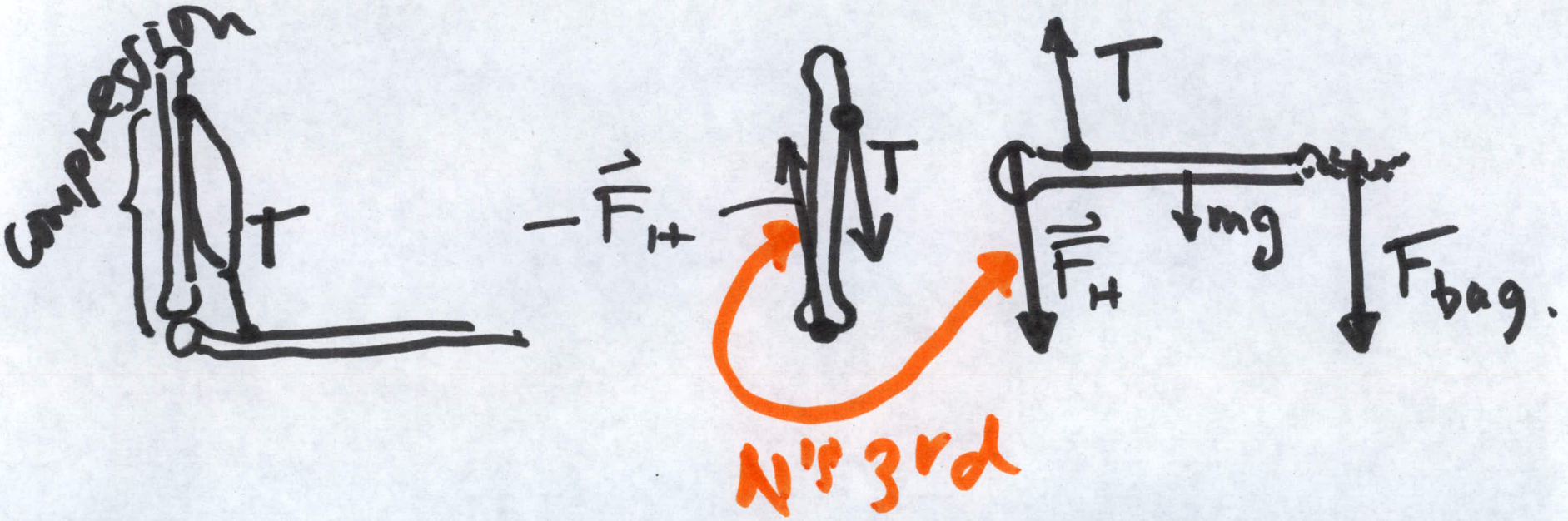
~~$(+\frac{mg}{2})$~~ ~~$(+\frac{mg}{2})$~~

$x=L$ $N_1=0$ $N_2=Mg$

$x=\frac{L}{2}$ $N_1=\frac{1}{2}Mg$ $N_2=\frac{1}{2}Mg$





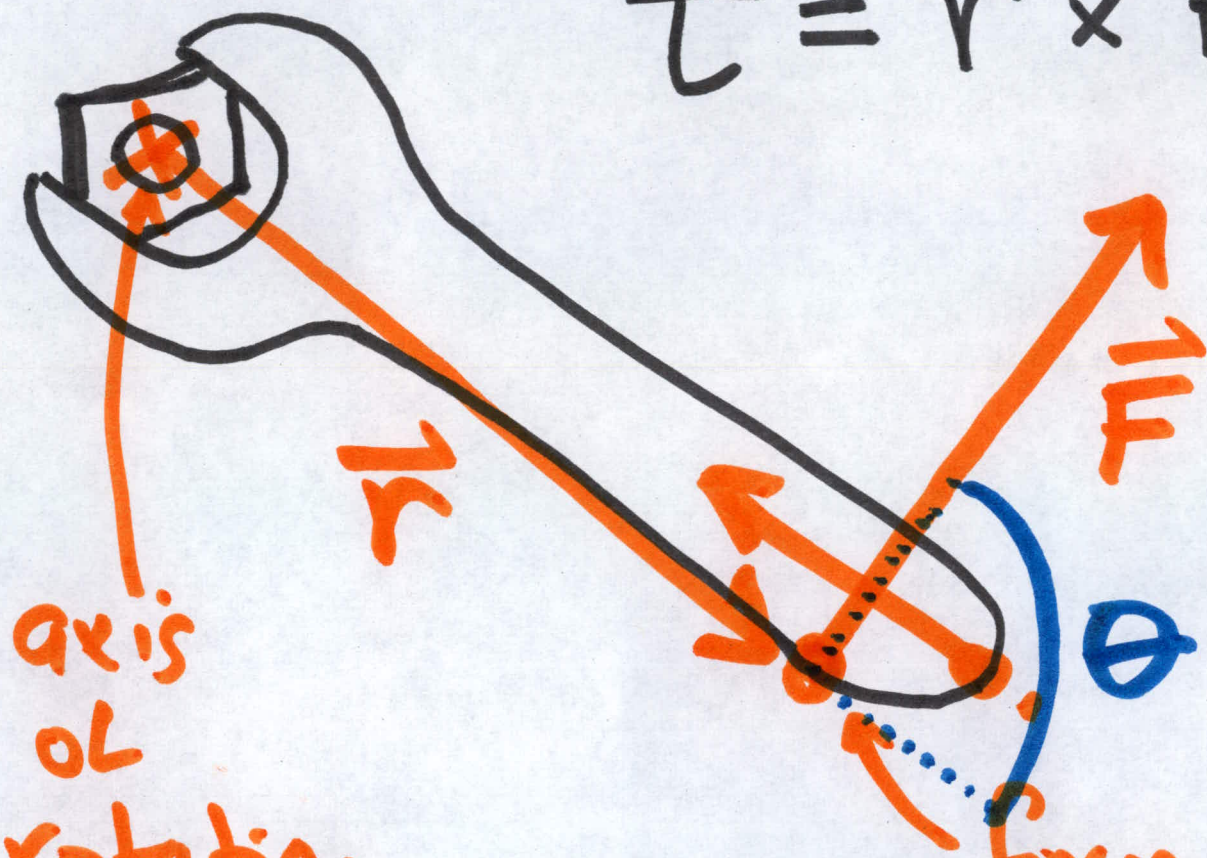


Statics: Net force is zero: $\vec{a} = \vec{0}$.

Net torque is zero

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

definition of torque

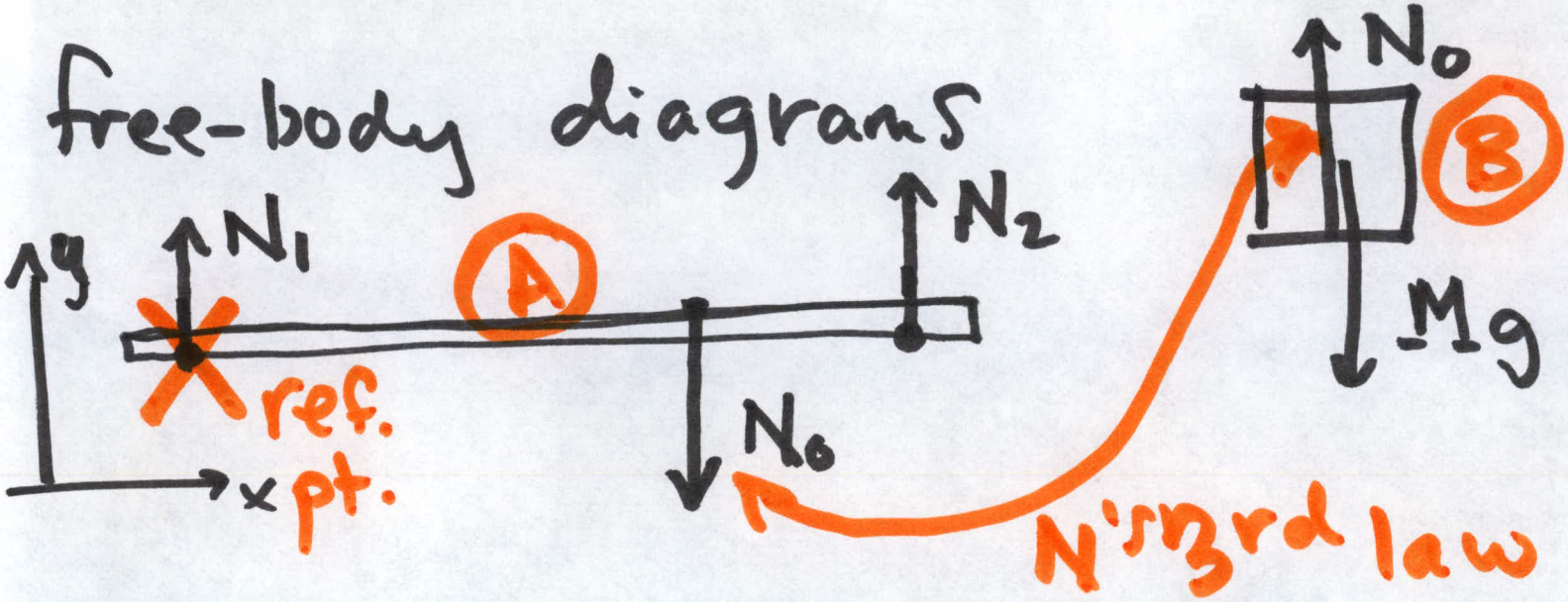


"reference point"

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

- want $|\vec{r}|$ to be big
- want $|\vec{F}|$ to be big.
- want $\sin\theta$ to be 1

free-body diagrams



static

Forces in y-direction: (A) $N_1 + N_2 - N_0 = 0$

(B) $N_0 - Mg = 0$

Torques (ccw): $0 \cdot N_1 - x N_0 + L N_2 = 0$