LINEAR MOTION $\sum F's = ma$

ROTATIONAL MOTION $\sum \tau's = I\alpha$

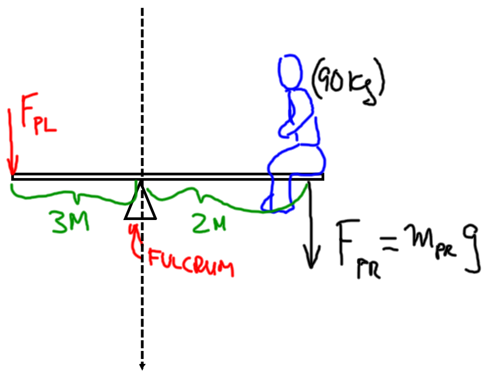
- α ← ANGULAR ACCELERATION
- I ← ROTATIONAL MOMENTUM INERTIA
- $\sum \tau's$ ← TORQUE

$$\boxed{\sum \tau's = 0}$$

SUM of TORQUES = 0

TORQUE = $\text{FORCE}_{\perp}$ X DIST.

$F_R = (90)(9.81) = 882.9 \text{ N}$



$$+882.9\text{N}(2\text{M}) - F_{PL}(3\text{M}) = 0$$

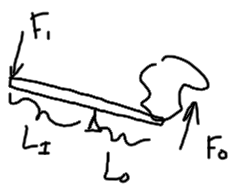
$$1765.8 = 3F_{PL}$$

$$F_{PL} = 588.6\text{N} = mg$$

∴ mass of PL = [60kg] ← Person on the left

$$(90)(2) - (x)(3) = 0$$

$$x = 60 \text{ kg}$$



$$(F_1 L_1 = F_o L_o)$$

$$\frac{F_I}{F_o} = \frac{L_o}{L_I}$$

$\Sigma F's = ma$

$\Sigma \tau's = I\alpha$

α = ANGULAR ACCELERATION

I = ANGULAR MOMENT OF INERTIA

τ = TORQUE

FOR OUR CLASS

$\alpha = 0$

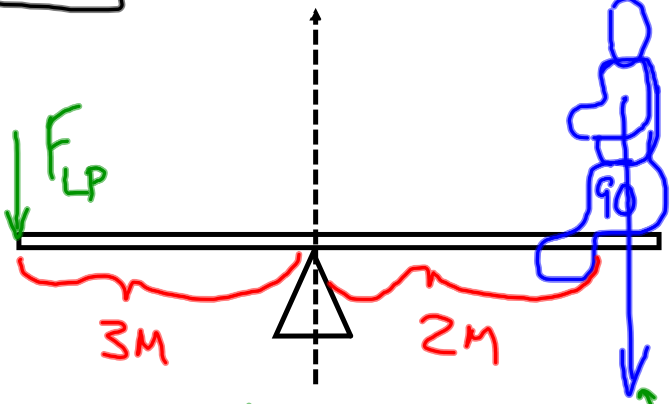
$\boxed{\Sigma \tau's = 0}$ EQUILIBRIUM

$\tau \text{(TORQUE)} = F_{\perp}(\Delta d)$

$(N \cdot M) \neq$ JOULES

CW τ's → +

CCW τ's → −



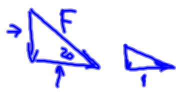
$F = W = mg$

$(90)(9.81)$

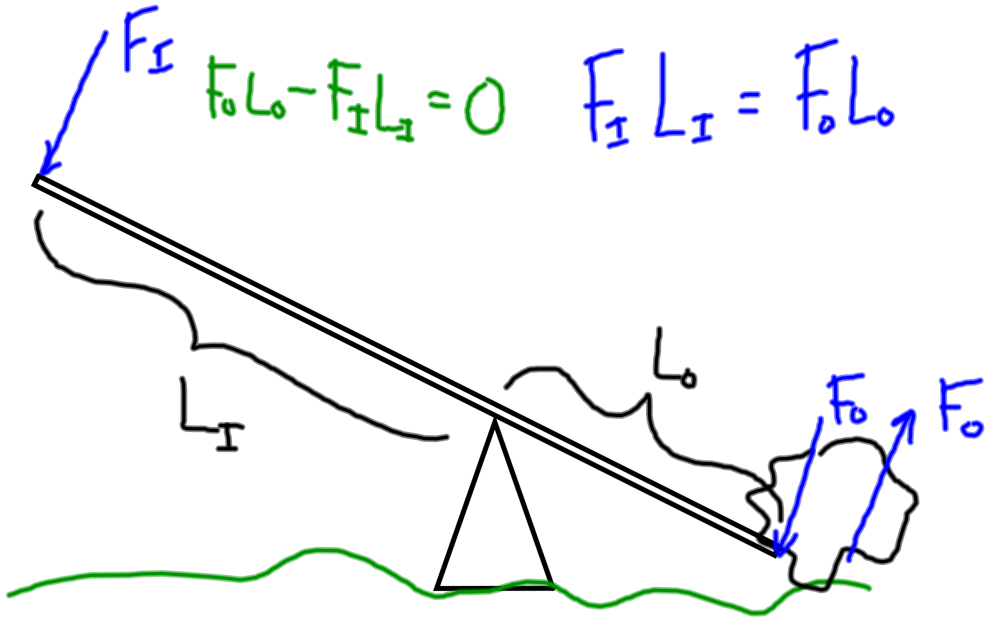
$= 882.9N$

$+(882.9)(2) - (F_{LP})(3) = 0$

$F_{LP} = 588.6N \quad m_{LP} = 60kg$



$$F_o L_o - F_I L_I = 0 \qquad F_I L_I = F_o L_o$$



$$\frac{F_o}{F_I} = \frac{L_I}{L_o} = MA \rightarrow \text{MECHANICAL ADVANTAGE}$$