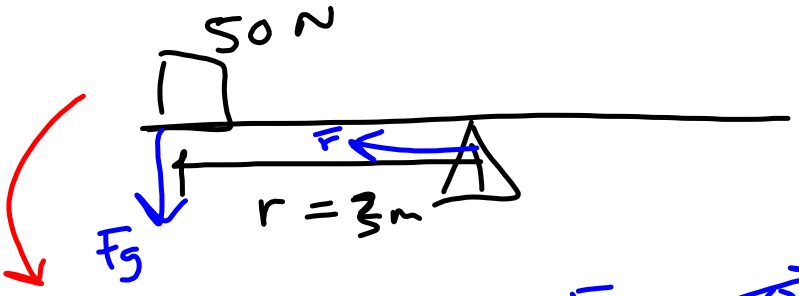
TORQUE

- Most times, $\sum \tau = \emptyset$
  - If we want something in static equilibrium, $\sum \tau$ must be $\emptyset$!

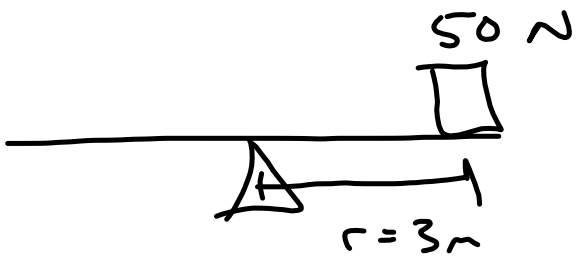
- EXAMPLES: Seesaw

$\tau = rF\sin\theta$

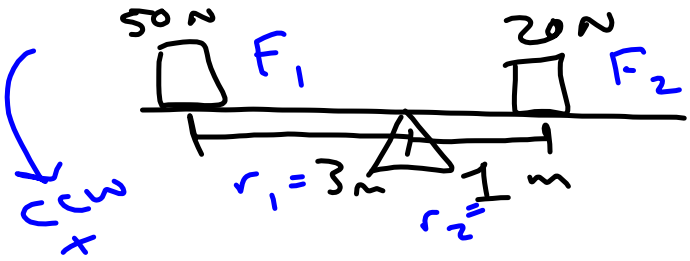


$\tau = rF\sin\theta$ ($\sin\theta = 1$)

$= 150\ N \cdot m$ CCW



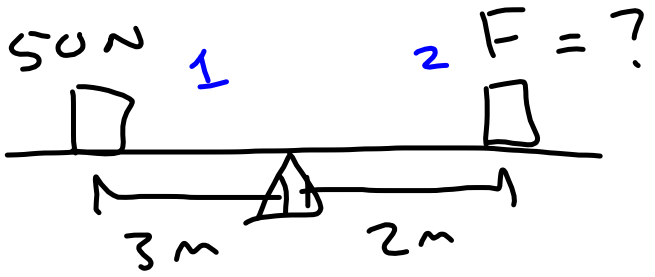
$\sum \tau = 150\ N \cdot m$ CW



$$\bar{\tau}_{net} = \bar{\tau}_1 - \bar{\tau}_2$$

$$= 150\ N \cdot m - 20\ N \cdot m$$

$$= 130\ N \cdot m$$



$$\bar{\tau}_{net} = \emptyset$$

$$\bar{\tau}_1 = \bar{\tau}_2$$

$$r_1 F_1 = r_2 F_2$$

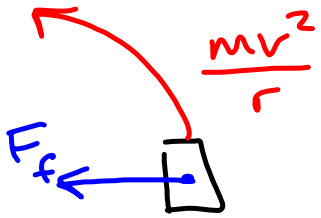
$$F_2 = \frac{r_1 F_1}{r_2}$$

$$= \frac{(3\ m)(50\ N)}{2\ m}$$

$$= 75\ N$$

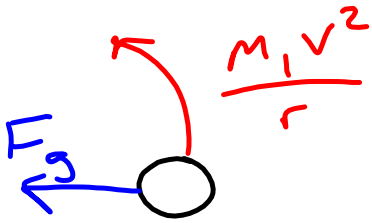
Review Sheet

3) $F_f = \mu F_N$



$\mu = 0.167$

4)



$$F_g = \frac{m_1 v^2}{r}$$

$$\frac{G m_1 m_2}{r^2} = \frac{m_1 v^2}{r}$$

$$\frac{G m_2}{r} = v^2$$

$$m_2 = \frac{r v^2}{G}$$