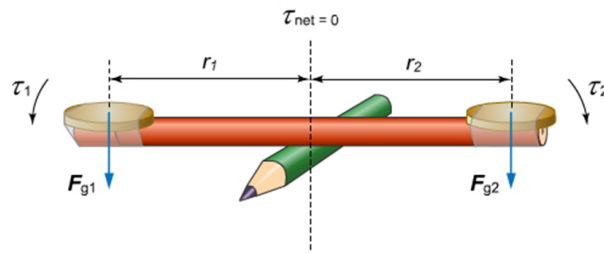


8.2 Finding Net Torque



$$\tau_1 = F_{g1} r_1$$

$$\tau_2 = F_{g2} r_2$$

If balanced

$$\tau_1 = \tau_2$$

$$\text{So } F_{g1} r_1 - F_{g2} r_2 = 0$$

Mar 20-9:49 AM

Example problem:

Paul (72 kg) and Sally (43 kg) want to balance on a 2.0 m seesaw. Where should they place the pivot point?

$m_p = 72 \text{ kg}$
 $m_s = 43 \text{ kg}$
 $r_p + r_s = 2.0 \text{ m}$
 $r_p = 2 - r_s$

$F_p = 72 \cdot 9.8 = 705.6 \text{ N}$
 $F_s = 43 \cdot 9.8 = 421.4 \text{ N}$

$$\tau_p = \tau_s$$

$$F_p \cdot r_p = F_s \cdot r_s$$

$$705.6(2 - r_s) = 421.4 r_s$$

$$1411.2 - 705.6 r_s = 421.4 r_s$$

$$1411.2 = 1127 r_s$$

$$\frac{1411.2}{1127} = \frac{1127 r_s}{1127}$$

$$r_s = 1.25 \text{ m}$$

$$r_p = .75 \text{ m}$$

Mar 20-9:58 AM

Assignment: pg. 205
problems 16 - 20 all

Quiz corrections due
Wednesday, March 22nd

Mar 20-10:01 AM