

Static Equilibrium and TorqueTranslational equilibrium

$$F_{\text{NET}} = 0 \text{ (hanging picture problems)}$$

Rotational equilibrium

$$\tau_{\text{NET}} = 0 \text{ (net torque is zero)}$$

Static equilibrium

$$F_{\text{NET}} = 0$$

$$\tau_{\text{NET}} = 0$$

Ex 2: A 20.0 kg board acts as a seesaw. One child has a mass of 30.0 kg and sits 2.5 m away from the **fulcrum**. Where must a 25 kg child sit in order to attain **static equilibrium**?

1. Draw FBD

2.  $F_{\text{NET}} = 0$

3. Net Torque = 0
  - \* pivot point?
  - \* direction of torque?
  - \* any force through a pivot point creates no torque (since  $r = 0$ )