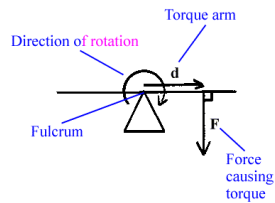


Torque

Torque

Objectives

- Calculate torque
- Differentiate between torque and work
- Use torque to balance a mobile



Work

force causes an object to move

$$W = F \cdot d$$

Unit: N-m

d is distance object moved
F is same direction as d



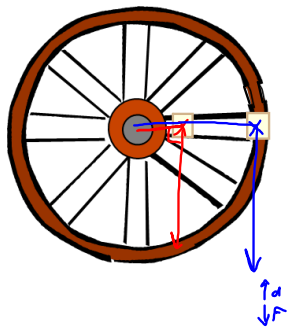
Torque

force causes rotation

$$T = F_{\perp} \cdot d$$

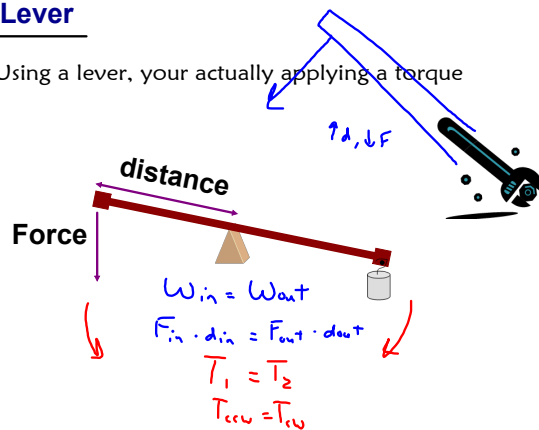
Unit: N-m

d is distance is from axis
F is perpendicular to d



Lever

Using a lever, you are actually applying a torque



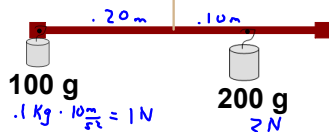
Mobile

A pair of torques can balance each other

$$.2 \text{ N}\cdot\text{m} \quad T_1 = T_2 \quad .2 \text{ N}\cdot\text{m}$$

$$F_1 \cdot d_1 = F_2 \cdot d_2$$

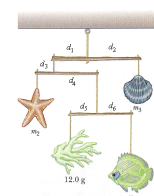
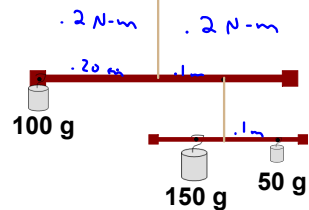
$$1 \text{ N} \cdot .2 \text{ m} \quad 2 \text{ N} \cdot .1 \text{ m}$$



Mobile - Schematic Drawing

$$T_1 = T_2$$

$$F_1 \cdot d_1 = F_2 \cdot d_2$$



Torque

Assignments . . .



- Discuss ideas for Mobile Project with your lab group

- Begin Chapter 10 Homework #1 - 6

