

## Work, Energy, and Simple Machines

### Physics

#### Chpt 10 rev 2

1. Brandon pulls a crate with a force of 65 N directed along a rope that makes an angle of  $36^\circ$  with the horizontal. What is the work done by Brandon if he pulls the box 12 m?
2. How much work does gravity do moving a 35 kg crate down a ramp that is 12 m long and at an angle of  $23^\circ$  ?
3. How much power does Jess consume pulling a 65 kg box along the floor with a force of 440 N directed along a rope at an angle of  $33^\circ$  if it takes 2.0 minutes?...it moves 12 m...
4. a) How much force a can crusher develop if it consists of two levers hitched together and you push down with 375 N a distance of 3.0 m at one end and the crusher end moves 14 cm at the other end?...the first lever is 88% efficient and the second lever is 77% efficient....b) What is the  $AMA_T$  and  $IMA_T$ ?
5. What speed will a 5.4 kW motor lift a 322 kg object at if there is no friction?
6. A ramp is 13 m long and 3.5 m high.
  - a) What force is needed to slide a 44 kg box to the top if friction is ignored?
  - b) What force is needed to slide the force up the ramp if the efficiency is 88%?
  - c) What is the AMA and IMA of the ramp?... (still 88% efficient)

7. What are the AMA, IMA, and Eff of the pulley?  
The mass of the box is 12 kg and it moves up 1.0 m....

