Work, Energy, and Simple Machines
(Chpt 10 Rev 1)

1. A 125 kg box is pulled along the ground a distance of 134 m by a force of 145 N directed along a rope. If the young person does 7634 J of work to accomplish the task what angle is the rope at?

2. What speed is a 789 kg crate lifted at if 4.77 kW of power are consumed for a 77% efficient electric motor to turn the 86% efficient winch?

3. A 15 m ramp is at an angle of 32^{o}.
   a) What is the weight of the object if you push it up the ramp with a force of 55 N? (let's ignore friction for #a and #b)

   b) What is the IMA of the ramp?

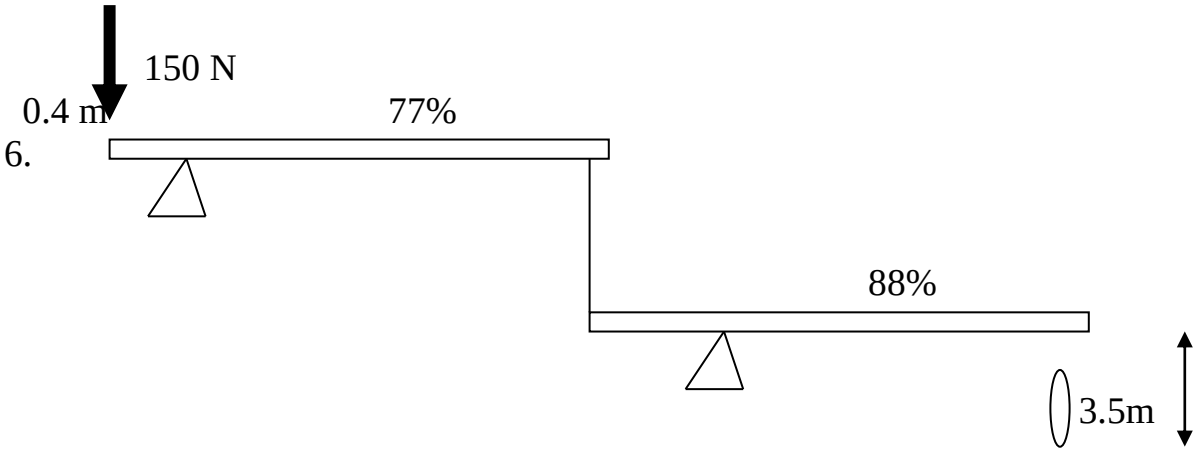
   c) What is the AMA of the lever if the efficiency is now 88%?

   d) What would the effort force be at that efficiency (88%)?

4. What force does Joe have to apply to a rope to move a 125 kg box alone the horizontal if he does 4456 J of work to move it 34 m and the rope is at a 33º angle?

5. How much power is needed to move a 344 kg piano up a 23 m ramp that is at a 19º angle and it takes 1 ½ minutes?

6.



Find the Total: Eff, IMA, AMA, and F_r