

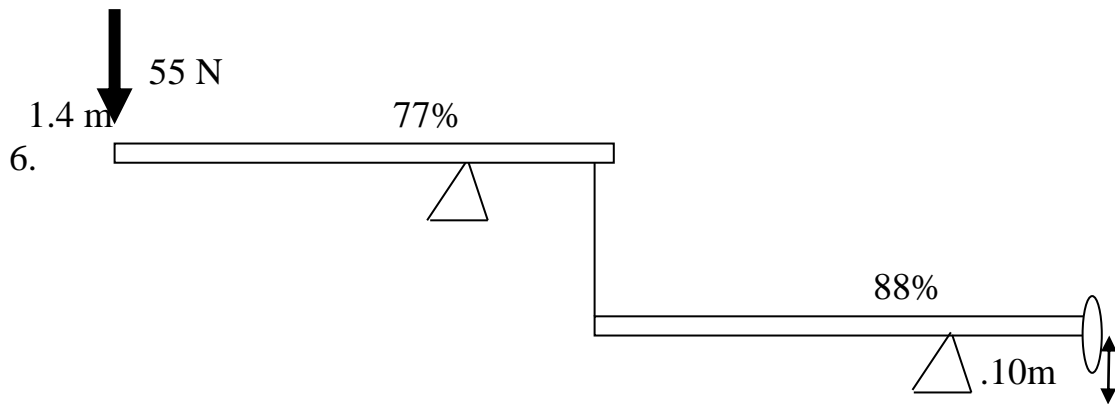
Work, Energy, and Simple Machines

(Chpt 10 Rev 8)

1. A 55 kg box is pulled along the ground a distance of 44 m by a force of 110 N directed along a rope. If the young person does 3700 J of work to accomplish the task what angle is the rope at?
2. What speed is a 78 kg crate lifted at if 1.1 kW of power are consumed for a 70.% efficient electric motor to turn the 85% efficient winch?
3. A 4.5 m ramp is at an angle of 22° .
 - a) What is the weight of the object if you push it up the ramp with a force of 45 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 85%?
 - d) What would the effort force be at that efficiency (85%)?

4. What force does Joe have to apply to a rope to move a 25 kg box along the horizontal if he does 456 J of work to move it 34 m and the rope is at a 24° angle?

5. How much power is needed to move a 211 kg piano up a 4.5 m ramp that is at a 25° angle and it takes 35 seconds?



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