Simple Machine/Work
Chpt 10 rev 3
Physics

1. A 97.0 kg sled is pulled a distance of 147 m using 8,670 J of work. A force of 78.9 N is applied to a rope. A) What angle is the rope at?…b) How much Power is consumed if it took 18.0 s?

2. A steam turbine has an efficiency of 67.0% and is used to drive a hydraulic pump that lifts boats. If the pump has an efficiency of 87.0%, what velocity will it lift an 875 kg boat if 4.55 KW of power are available to the turbine?

3. A lever has an efficiency of 90.0%. a) What work is needed to lift a 34.5 kg mass 0.567 m? b) If 95 N of force are applied to the lever, how far is the effort force exerted? C) What is the AMA and IMA?

4. A ramp is 9.90 m long and 3.40 m high.. a) What force is needed to slide a 45 kg box to the top if friction is ignored?…b) What is the IMA of the ramp?…c) What is the AMA if the efficiency is 76.0%?…d) What would the new F_e be with the efficiency of 76.0%?

5. A compound machine is made up of two levers. Find the AMA, IMA, W_i, W_o, Eff of the compound machine.

500 N

0.5 m

5.1 kg

4.0 m