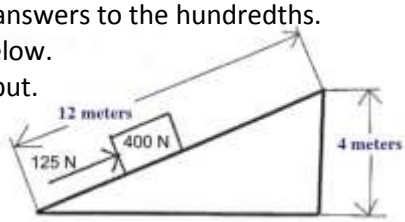
Efficiency Practice Name_____Period_____

Show all work and round answers to the hundredths.

1. Refer to the diagram below.



a. Calculate work input.

b. Calculate work output.

c. Calculate efficiency.

d. Calculate mechanical advantage.

2. You apply a force of 65 N over a distance of 14 m in order to raise a 100 N box of science books 5.5 m.

a. Calculate work input.

b. Calculate work output.

c. Calculate efficiency.

d. Calculate mechanical advantage.

3. A person uses a machine to move 7.7 kg object a distance of 5 m. This person applies a force of 49 N over a distance of 10 m.

a. Calculate work input.

b. Calculate work output.

c. Calculate efficiency.

d. Calculate mechanical advantage.

4. In using an inclined plane, a force of 200 N is used to push a 500 N object. You have to push through a distance of 25 m to finally get the object 5 m high.

a. What is work input?

b. What work output?

c. How much mechanical advantage does the machine provide?

d. How efficient is the machine?

5. A pulley does 30 kJ of output work in 1.4 minutes with input of 35 kJ. What is the efficiency of the pulley?

6. A pulley system is used to lift a safe weighing 1000 N 2 m off the floor. To do this job the man must pull 40 m of rope with a force of 80 N. What is the efficiency of this system?

10. You do 15,000 J of work with a screw jack. If the screw jack does 14,500 J of work, what is the efficiency of the screw jack?

11. You do 1200 J of work with gears. If the gears do 1000 J of work, what is the efficiency of the gears?

12. You do 1260 J of work with a wheel and axle. If the wheel and axle does 1200 J of work, what is the efficiency of the wheel and axel?

13. You do 75 J of work with a wedge. If the wedge does 65 J of work, what is the efficiency of the wedge?

14. A lever is 90% efficient. If you do 50 J of work with a lever, how much work is the lever doing?

15. A ramp is 77% efficient. If the ramp does 200 J of work, how much work are you doing when you push the box up a ramp?