Mechanical Advantage and Efficiency

1. A force of 30 N is applied to a screwdriver to pry the lid off of a can of paint. The screwdriver applies 75 N of force to the lid. What is the mechanical advantage of the screwdriver?

   Given:

   Find:

2. A force of 75 N is applied to a nutcracker to crack open a walnut. If the mechanical advantage of the nutcracker is 3.5, what is the force the nutcracker applies to the walnut?

   Given:

   Find:

3. A lever is used to lift a heavy rock. The mechanical advantage of the lever is 4 and the lever applies a force of 800 N to the rock. What is the force applied to the lever?

   Given:

   Find:

4. To open a soda bottle, a force of 55 N is applied to the bottle opener. If the bottle opener applies a force of 675 N to the cap, what is the mechanical advantage of the bottle opener?

   Given:

   Find:

5. A lever is designed to have a mechanical advantage of 6. If the lever applies a force of 1800 N to an object, how much force is applied to the lever?

   Given:

   Find:
6. When using a pulley with a mechanical advantage of 1.5, a worker applies 250 N to the pulley. The pulley is used to lift a heavy crate. How much force does the pulley apply to the crate?
   *Given:*

   *Find:*

7. A nutcracker is used to crack open a crab leg. 15 N of force is applied to the nutcracker and the nutcracker applies 50 N of force to the crab leg. What is the mechanical advantage of the nutcracker?
   *Given:*

   *Find:*

8. A stage crew member uses a pulley system to lift scenery for the school play. If he does 750 J of work and the pulley system does 600 J of work, what is the efficiency of the pulley system?
   *Given:*

   *Find:*

9. To pull a nail out of a wood board a carpenter does 1000 J of work. The hammer he uses does 835 J of work. What is the efficiency of the hammer?
   *Given:*

   *Find:*

10. A ramp is used to load furniture onto a moving truck. The person does 1240 J of work pushing the furniture up the ramp, and the ramp does 822 J of work. Calculate the efficiency of the ramp.
    *Given:*

    *Find:*

11. A lever does 765 J of work and the person using the lever applies 890 J of work. What is the efficiency of the lever?
    *Given:*

    *Find:*