

1. What is the purpose of a machine?

2. True or False: Machines decrease the work required to perform a task.

3. The _____ the mechanical advantage of a machine, the easier it is to operate.

4. What is true for an ideal machine? _____ Real machines are _____ efficient than ideal ones.

5. What is power? _____ The unit for power is the _____ per _____ or the _____.

6. An electric motor lifts an elevator that weighs 1.20×10^4 N a distance of 9.00 m in 15.0s. What is the power of the elevator?

7. A package weighing 55 N is lifted to a height of 2.0 m by pulling it up a ramp 4.4 m long. The person pulling the package exerts a force of 6.5 N.
 - a. What is the mechanical advantage of the ramp?

 - b. What is the work input? c. What is the work output?

 - d. What is the efficiency of the machine?

8. Jo lifts a 330 N cement block 3.6 m (using a system of pulleys) by pulling 16 m of rope with a force of 121 N.
- What is the mechanical advantage of the pulley system?
 - What is the work input?
 - What is the work output?
 - What is the efficiency of the machine?
9. In 35 s, a pump delivers 55,000 g of oil into a barrel on a platform 25 m above the pump intake pipe.
- Calculate the work done by the pump.
 - Calculate the power of the pump.
10. Would you use less electrical energy by burning a 60-watt light bulb for 900 seconds or a 100-watt light bulb for 500 seconds? Explain.