





ICP – Simple Machines Quiz      May 20, 2009

5. A ramp with a mechanical advantage of 9 is used to move a 45-newton load. What input force is needed to push the load up the ramp? Determine the  $W_{\text{out}}$  and the resistance distance if the machine is 70% efficient and effort distance is 35 m.
6. A 6-meter ramp lifts objects to a height of 1.25 meters. What is the mechanical advantage of the ramp? If the input force is 400N and the box weighs 150 kg, determine the efficiency of the ramp.

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7. A 10-meter long ramp has a mechanical advantage of 5. What is the height of the ramp? If the load weighs 1500 kg and the machine is 80% efficient, determine the actual mechanical advantage of the lever.
8. A ramp with a mechanical advantage of 4 lifts objects to a height of 2.5 meters. How long is the ramp? If the  $W_{in}$  is 2500J and the efficiency of the machine is 75%, determine the weight of the load.