

**Mr. Bosworth**  
**General Physics**  
**Energy Worksheet #2**

**NAME** \_\_\_\_\_  
**PERIOD** \_\_\_\_\_

1. A 75.0-kg trampoline artist jumps vertically upward from the top of a platform with a speed of 5.00 m/s. How fast is he going when he lands on the trampoline 3.00 m below the platform?

Answer \_\_\_\_\_

2. A high jumper (Javier Sotomayor) wants to clear a height of 2.45 m. In order to do this the jumper must keep a speed forward of .715 m/s as he clears the bar. How fast does he need to be running right before he jumps?

Answer \_\_\_\_\_

3. A force of 123 N acts on a 10.0 kg object for 45.6 m. If the object starts at rest, and the surface is flat, how fast is the object moving after the force is removed?

Answer \_\_\_\_\_

4. How much work is done to lift a 60.0 kg person from a ledge 50.0 m high, down to a ledge 25.0 m high and then up to a ledge 70.0 m high?

Answer \_\_\_\_\_

5. Fred raises a 30.0 kg box to a height of 5.00 m in 12.5 s. What is Fred's power?

Answer \_\_\_\_\_

6. How much work can a .600 kW drill do in 2.00 minutes?

Answer\_\_\_\_\_

7. The work done to lift a 30.0 kg mass is 4444 J. How high was the object lifted?

Answer\_\_\_\_\_

8. An 80.0-kg person carrying a 20.0-kg backpack climbs to the summit of a 3300.-m high mountain. The grade of the mountain averages around  $30.0^\circ$  above the horizontal. How much work does the person do while climbing? (Assume only enough friction to allow the climber to move).

Answer\_\_\_\_\_

9. A 40.0-kg box is pulled up a  $35.0^\circ$  incline at a constant speed. If the length of the incline is 20.0 m, how much work is needed to pull up the box? ( $\mu = .225$ )

Answer\_\_\_\_\_

10. How much potential energy was gained by the box in question #9?

Answer\_\_\_\_\_

11. Why is the energy gained in the last question less than the work put into it?