

## WEP Practice Test (Pre-AP Physics)

Name: \_\_\_\_\_

### Short Answer (18 pts.)

1. The Conservation of Energy says...(at least one form please)
2. \_\_\_\_\_ changes energy.
3. We discussed a form of potential energy in class—namely gravitational potential energy. For  $PE_g$  to be considered in solving an energy problem, what must change about an object?
4. In the lab we did to find the power of a person, how did we find the amount of work the person did by climbing the stairs? (Don't give an equation. What principle did we use?)
5. As your physics teacher drops a bowling ball on the floor, the ball's potential energy transforms into kinetic energy until all of it is transformed into kinetic energy right before it hits. What happens to this kinetic energy when the ball hits the floor? (Name at least two things.)
6. Work/Energy is measured in \_\_\_\_\_ Power is measured in \_\_\_\_\_  
Force is measured in \_\_\_\_\_ Mass is measured in \_\_\_\_\_

### Puzzles (Answer the following using ideas of work, energy, and power. 16, 18, 16, 16, 16 pts.)

7. As you are moving into your dorm room at college your little brother uses a rope to tug a small wagon of belongings along the hallway floor. If he tugs with a force of 35.0 N at an angle of 30.0 degrees above the horizontal for a distance of 20.0 m, calculate the work he does.

Ans:

8. A  $1.20 \times 10^3$  kg car, starting from rest, accelerates for 5.00 seconds. The magnitude of the acceleration is  $4.60 \text{ m/s}^2$ . Determine the final speed of the car, the change in the car's energy, and the power generated by the car's engine.

Ans:

Ans:

Ans:

10. A hockey puck ( $m = 0.162 \text{ kg}$ ) with an initial velocity of  $45.0 \text{ m/s}$  slides across some rough ice for a distance of  $18.0 \text{ m}$  and leaves the rough patch with a speed of  $41.0 \text{ m/s}$ . Find the force of friction that acted on the puck.

Ans:

11. Imagine that a bullet with a mass of  $6.0 \times 10^{-3} \text{ kg}$  leaves a rifle at  $320 \text{ m/s}$  and experiences an average air drag force of  $1.2 \times 10^{-3} \text{ N}$ . How high can the bullet rise if fired straight up?

Ans:

12. You throw something at  $5.0 \text{ m/sec}$ , and it hits the ground at  $9.0 \text{ m/sec}$ . How far above ground level are you?

Ans: