Name: _____

Work and Kinetic/Potential Energy Calculations

Directions: Work through each calculation and <u>SHOW ALL WORK</u>!

1. What are the units for work and kinetic/potential energy? _____

2. A 6-kg rock is thrown with a velocity of 10m/s. What is the kinetic energy of the rock?

3. A 18-kg cat climbs upwards 12 meters to sit on the roof of a house. How much potential energy does it possess while it sits enjoying the sunshine?

4. Determine the kinetic energy of a 1000-kg roller coaster car that is moving with a velocity of 20m/s?

5. If the roller coaster car in the above problem were moving with twice the velocity, then what would the new kinetic energy be?

6. A cart is loaded with a brick and pulled at a constant speed along an inclined plane to the height of a seat-top. If the mass of the loaded cart is 3.0-kg and the height of the seat-top is 0.45 m, then what is the potential energy of the loaded cart at the height of the seat-top?

7. In the above problem, the cart is pulled a distance of 20 m with a force of 30N. What is the work being done?

8. A 37-kg object is lifted to a height of 3 m. What is the potential energy of the object?

9. In the above problem, what is the work being done if the objected was lifted 3m with a force of 40N?