KINETIC AND POTENTIAL ENERGY WORKSHEET   Name: _____

Date: _____   Pd.: _____

Determine whether the objects in the following problems 1-8 have kinetic or gravitational potential energy. Then choose the correct formula to use to solve. Solve for problems 9-16.

$$KE = 1/2 \ m \ v^2 \qquad OR \qquad GPE = mgh$$

1. You serve a volleyball with a mass of 2.1 kg. The ball leaves your hand with a speed of 30 m/s. The ball has _____ energy. Calculate it.

2. A baby carriage is sitting at the top of a hill that is 21 m high. The carriage with the baby weighs 12 N. The carriage has _____ energy. Calculate it.

3. A car is traveling with a velocity of 40 m/s and has a mass of 1120 kg. The car has _____ energy. Calculate it.

4. A cinder block is sitting on a platform 20 m high. It weighs 79 N. The block has _____ energy. Calculate it.

5. There is a bell at the top of a tower that is 45 m high. The bell weighs 190 N. The bell has _____ energy. Calculate it.

6. A roller coaster is at the top of a 72 m hill and weighs 966 N. The coaster (at this moment) has _____ energy. Calculate it.

7. If a 25 kg object is moving at a velocity of 5 m/s, the object has _____ energy. Calculate it.

8. If a 25 kg object is moving at a velocity of 10 m/s, the object has _____ energy. Calculate it.

9. What is the kinetic energy of a 25 kg object moving at a velocity of 2.5 m/s?

10. What is the kinetic energy of a 150 gram object moving at a velocity of 100 m/s?

11. What is the kinetic energy of a 1500 kg object moving at a velocity of 10 m/s?

12. What is the gravitational potential energy of a 150 kg object suspended 5 m above the earth's surface?

13. What is the gravitational potential energy of a 2.5 kg object that is 300 m above the surface of the earth?

14. What is the mass of an object that is hanging 12.6 m above the surface of the earth and has a GPE of 2778.3 J?

15. An object has a GPE that is 833 J. Its height above ground is 4.25 m. What is its mass?

16. An object has a gravitational potential energy of 41772.5 J and has a mass of 1550 kg. How high is it above ground?