**KINETIC AND POTENTIAL ENERGY WORKSHEET Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Determine whether the objects in the following problems have kinetic or potential energy. Then choose the

correct formula to use:

**KE=** 1/2 m v2

**PE** = mass x gravitational acceleration (9.8m/s2) x height **OR**  Weight X Height

Energy= joules

Weight= Newton

Mass= kilograms

Velocity= m/s

Gravitational acceleration= (9.8 m/s**2**)

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. What is the kinetic energy of a 3-kilogram ball that is rolling at 2 meters per second?

8. Two objects were lifted by a machine. One object had a mass of 2 kilograms, and was lifted at a speed of  
2 m/sec. The other had a mass of 4 kilograms and was lifted at a rate of 3 m/sec.

a. Which object had more kinetic energy while it was being lifted?

b. Which object had more potential energy when it was lifted to a distance of 10 meters? Show your  
calculation.