

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 = $\frac{1}{2} m v^2$** OR **PE = $mgh = F_w h$**

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. The potential energy of an apple is 6.00 joules. The apple is 3.00-meters high. What is the mass of the apple?

9. 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.