KINETIC AND POTENTIAL ENERGY WORKSHEETS

Name :   **Date :**

Energy that a moving object has due to its motion is **Kinetic Energy**
Energy stored in an object due to its position is **Potential Energy**

$$KE = \frac{1}{2}mV^2 \quad PE = mgh$$

v = velocity velocity or speed   m = mass in kg
g = 9.81m/s2   h = height in meters

Directions: Answer the question below!

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 and show your work.

2. A baby carriage is sitting at the top of a hill that is 21 m high. The carriage with the baby has a mass of 1.5 kg. The carriage has _____ energy. Calculate it show your work.

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 and show your work.

4. A cinder block is sitting on a platform 20 m high. It weighs 7.9 kg. The block has _____ energy. Calculate it and show your work.

5. Determine the kinetic energy of a 1000-kg roller coaster car that is moving with a speed of ng with a speed of 20.0 m/s. 20.0 m/s.

6. The potential energy of a 40-kg cannonball is 14000 J. How high was the cannonball to have this much potential energy?

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Directions: Answer the question below!

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 ___**Kinetic**___ energy. Calculate it and show your work.
   KE = 0.5 x 2.1 x 302
   KE = 945J

2. A baby carriage is sitting at the top of a hill that is 21 m high. The carriage with the baby has a mass of 1.5 kg. The carriage has ___**Potential**___ energy. Calculate it show your work.
   PE = 1.5 x 9.81 x 21
   PE = 309.015J

3. A car is traveling with a velocity of 40 m/s and has a mass of 1120 kg. The car has ___**Kinetic**___ energy. Calculate it and show your work.
   KE = 0.5 x 1120 x 402
   KE = 896 000J

4. A cinder block is sitting on a platform 20 m high. It weighs 7.9 kg. The block has ___**Potential**___ energy. Calculate it and show your work.
   PE = 7.9 x 9.81 x 20
   PE = 1549.98J 1549.98J

5. Determine the kinetic energy of a 1000-kg roller coaster car that is moving with a speed of ng with a speed of 20.0 m/s. 20.0 m/s.
   KE = 0.5 x 1000 x 202
   KE = 200 000J

6. The potential energy of a 40-kg cannonball is 14000 J. How high was the cannonball to have this much potential energy?
   H = PE / (G x M)
   H = 14000 / (9.81 x 40)
   H = 35.68M