

Work & Energy
Name: _____

Date: _____
Class: 8 ____

Energy, Work and Power

17. Calculate the kinetic energy of the rock in problem #8 if the rock rolls down the hill with a velocity of 8 m/s.
18. Calculate the kinetic energy of a truck that has a mass of 2900 kg and is moving at 55 m/s.
19. Find the mass of a car that is traveling at a velocity of 60 m/s North. The car has 5,040,000 J of kinetic energy.
20. How fast is a ball rolling if it contains 98 J of kinetic energy and has a mass of 4 kg?

WORKSHEET: POTENTIAL ENERGY PROBLEMS

Fill in the Blank:

1. Potential energy is the energy matter has as a result of its _____ or _____.
2. The more mass an object has the (more / less) potential energy it has.
3. The potential energy an object has due to its position is called _____ potential energy.
4. The formula for calculating gravitational potential energy is
$$PE = \underline{\hspace{2cm}}.$$
5. The value of the g constant (the acceleration of all objects due to gravity) on earth is _____.

6. A 10 kg mass is lifted to a height of 2 m. What is its potential energy at this position? Given Formula Substitution Answer (with units)
7. At what height is an object that has a mass of 16 kg, if its gravitational potential energy is 7500J?
8. What potential energy is acquired by a hammer with a mass of 0.75 kg when raised 0.35m?
9. A book with a mass of 1 kg is dropped from a height of 3 m. What is the potential energy of the book when it reaches the floor?

Work

Write the equation and units for work:

1. A weight lifter lifts a set of weights a vertical distance of 2 m. If a constant net force of 350 N is exerted on the weights, what is the net work done on the weights?
2. If 2 J of work is done in raising a 180 g apple, how far is it lifted?
3. If a neighbor pushes a lawnmower four times as far as you do but exerts only half the force, which one of you does more work and by how much?
4. A worker pushes a 1500 N crate with a horizontal force of 345 N a distance of 24 m. Assume the coefficient of kinetic friction between the crate and the floor is .22.
 - a. How much work is done by the worker on the crate?
 - b. How much work is done by the floor on the crate?
 - c. What is the net work done on the crate?