

Physical Science Workset: Energy

Short Answer

1. The kinetic energy of an object increases as its ____ increases.
2. Increasing the speed of an object ____ its potential energy.
3. The SI unit for energy is the ____.
4. You can calculate kinetic energy by using the equation ____.
5. According to the law of conservation of energy, the total amount of energy in the universe ____.
6. What is the energy in motion?
7. What is the energy that is stored?
8. A jukebox that weighs 1023 N is lifted a distance of 45 m straight up by a rope. The job is done in 117 s. What power is developed in watts?
9. Superman, with a mass of 102.06 kg, was flying around one day looking out for trouble. He was flying at a height of 500 m then he stopped and floated in the air.

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



Figure 4-1

17. Which ball in Figure 4-1 has the greatest potential energy?
18. Which ball in Figure 4-1 has the least potential energy?
19. Use the equation $KE = 1/2m \times v^2$ to calculate the kinetic energy of a 100 kg cart moving at a speed of 7 m/s?

A roller coaster lifts a 10 kg mass _____ of the hill?

c. If you start skating down this hill, your potential energy will be converted to kinetic energy. At the bottom of the hill, your kinetic energy will be equal to your potential energy at the top. What is the speed of the skater at the bottom of the hill?