Practice Problems—Potential & Kinetic Energy

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

1. What is the kinetic energy of a ball with a mass of 5 kg rolling at 10 m/s?
2. How much gravitational potential energy has a boy whose mass is 50 kg and who is standing on top of a 1.5 meter high wall?
3. What kinetic energy has a 4 kg shotput thrown with a velocity of 13 m/s?
4. If a ball has kinetic energy of 1000 Joules and a speed of 5m/s, what is its mass?
5. What is the gravitational potential energy of a 3 kg ball kicked into the air at a height of 5 meters?
6. How much kinetic energy does a 12500 kg car travelling at 15 m/s have?
7. What is the gravitational potential energy of a 250 kg rock on top of a 200 meter cliff?
8. A 725 kg automobile has a kinetic energy of 3.02 e5J as it travels along a highway. What is the car’s speed?
9. A flower pot weighing 3 N is sitting on a windowsill 30 meters from the ground.
* Is the energy of the flower pot potential or kinetic?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Determine the number of joules of energy involved.
1. A 1200 kg automobile is travelling with a velocity of 100 m/s.
* Is its energy potential or kinetic?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Determine how much energy it has.
1. If an airplane with a mass of 50000 kg has gravitational potential energy of 1000 kilojoules, what is its height?
2. Suppose the largest leatherback turtle yet to be discovered were to swim at a speed of 9.78 m/s. If its kinetic energy is 6.8 e4 J, what is its mass?