Kinetic and Potential Energy Calculations

Examples:

1. A 35kg boy is running down the street with a velocity of 5m/s.
   a. What type of energy does he have?
   b. Calculate his energy.
2. A 500 kg boulder is sitting at the top of a 1000m ledge.
   a. What type of energy does it have?
   b. Calculate the boulder's energy.
3. How much potential does a boy who weight 50N have if he is 200m from the earth?
4. A boy standing on the edge of a pool 5m above the water has 400J of potential energy.
   a. What is that boy's weight?
   b. What is that boy's mass?

Individual Practice:

1. You serve a volleyball with a mass of 2.1kg. 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 21m high. The carriage with the baby weighs 12N. The carriage has _____ energy. Calculate it.
3. A car is traveling with a velocity of 40m/s and has a mass of 1120 kg. The car has ___ energy. Calculate it.
4. A cinder block is sitting on a platform 20m high. It weighs 79N. The block has ___ energy. Calculate it.
5. There is a bell at the top of a tower 45 m high. The bell weighs 190N. The bell has _____ energy. Calculate it.
6. A roller coaster is at the top of a 72m high hill and weighs 966N. The coaster (at this moment) has _____ energy. Calculate it.
7. What is the kinetic energy of a 3 kg ball that is rolling at a speed of 2m/s?
8. The potential energy of an apple is 6.00J. The apple is 3m high.
   a. What is the weight of the apple?
   b. What is the apple's mass?
9. Two objects were lifted by a machine. One object had a mass of 2kg, and was lifted at a speed of 2m/s. The other had a mass of 4kg and was lifted at a rate of 3m/s.
   a. Which object had more kinetic energy?
   b. Which object has more potential energy at a height of 10m?
10. You are on roller blades on top of a small hill. Your potential energy is equal to 1,000J. The last time you checked your mass was 60 kg.
    a. What is your weight in newtons?
    b. What is the height of the hill?

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