**Conservation of Energy Worksheet**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1) State the law of conservation of energy.

2) A 200-kg boulder is 1000-m above the ground.

 a) What is its potential energy when it is 1000-m above the ground?

 b) What is its kinetic energy when it is 1000-m above the ground?

 c) The boulder begins to fall. What is its potential energy when it is 500-m above the ground? Where did the “lost” potential energy go?

 d) What is the kinetic energy of the boulder when it has fallen 500-m?

 e) What is the kinetic energy of the boulder just before it hits the ground?

3) A rollercoaster is designed as shown below. If the roller coaster starts at the top of the first hill from rest, describe what will happen to the rollercoaster. How could you fix this problem?

START

4) When you use a slingshot to fire a rock you stretch the rubber band storing potential energy. If you stretched the rubber band so that it had 100-J of potential energy,

 a) with how much kinetic energy will the rock leave the slingshot?

5) A pendulum has 15-J of potential energy at the top of its swing.

 a) What is its kinetic energy at the bottom of its swing?

 b) At another time the pendulum has 8-J of potential energy. What is its kinetic energy?

6) A 1-kg ball is 10-m above a table when it is dropped.

 a) How much Kinetic energy does the ball have just before it lands?

 b) What is the velocity of the ball just before it lands?