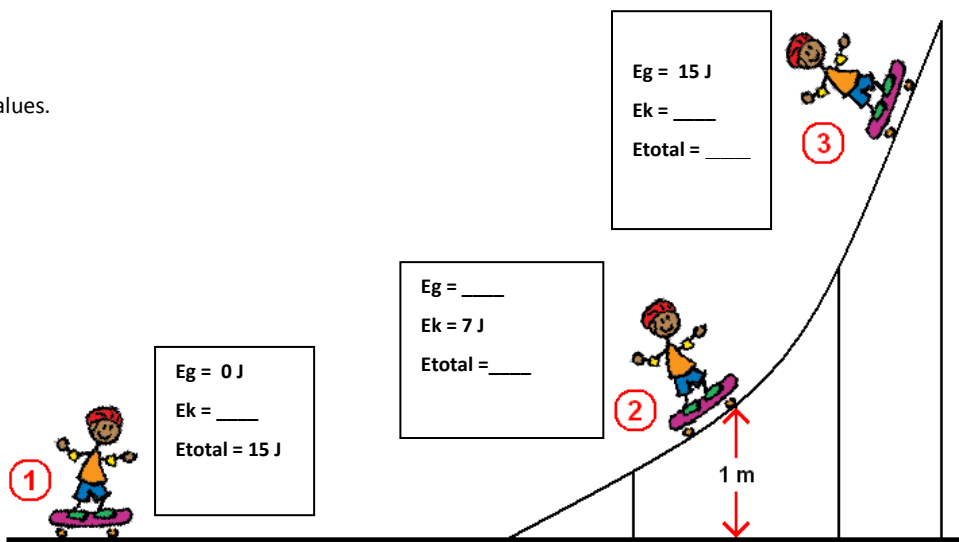
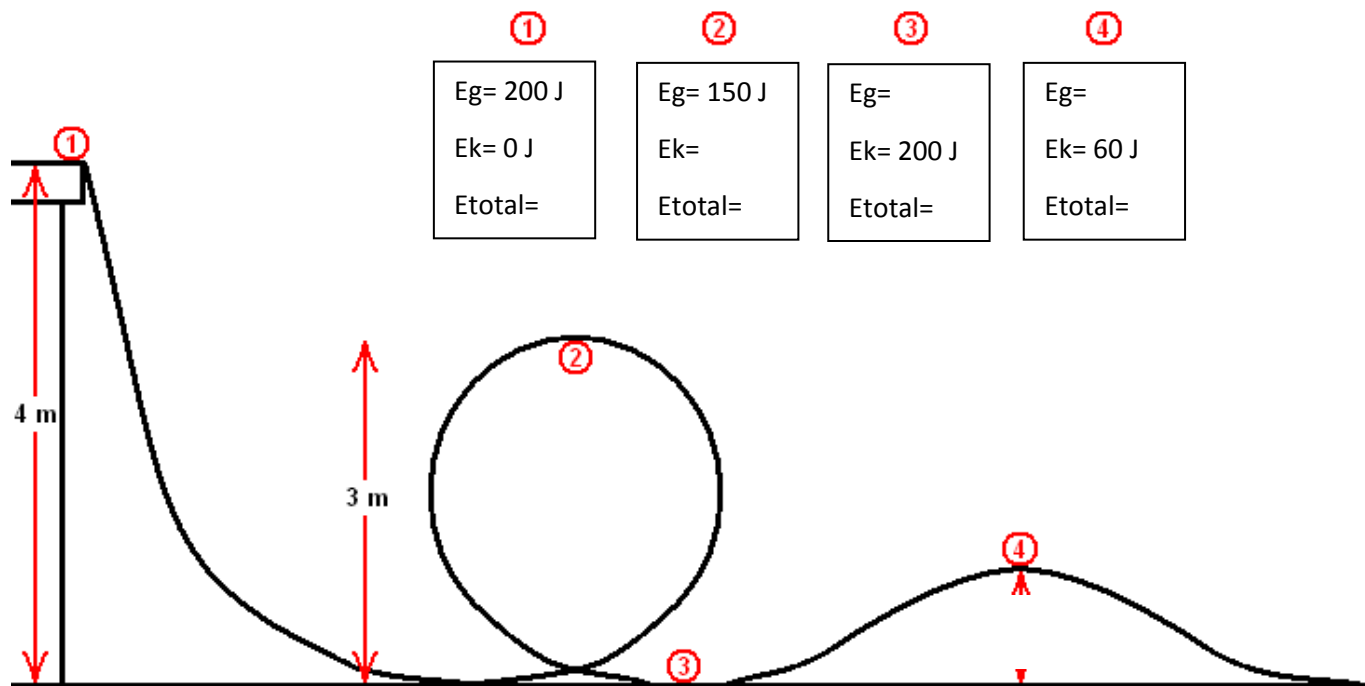


CONSERVATION OF ENERGY WORKSHEET [Unless otherwise stated, assume there is no air resistance and that all surfaces are frictionless]

1. Fill in the missing values.



2. Fill in the missing values.



3. An electric motor is used to hoist building supplies from the ground to the roof of a building.

- How much work can the motor do in 12 seconds if its power output is 1.5 kW (1,500 W)?
- How high can it lift a 131 kg bundle of shingles in that time?

4. A 1.8 kg book has been dropped from the top of the football stadium. Its speed is 4.8 m/s when it is 2.9 meters above the ground.
 - A. What is its total mechanical energy? (mechanical energy includes kinetic, gravitational potential, and elastic potential but not internal forms of energy such as thermal or chemical)
 - B. What was the total mechanical energy of the book at the instant it was released?
 - C. How high is the stadium?

5. A 28 kg child on a swing is traveling at 4.2 m/s and has 315 J of total mechanical energy. What is his gravitational potential energy? How high is he above the ground?

6. A 3.2 kg ball that is moving straight upward has 17 J of kinetic energy and its total mechanical energy is 25 J.
 - a. Find the gravitational potential energy of the ball.

 - b. What is its height above the ground?

 - c. What is the speed of the ball?

 - d. What will be its gravitational energy when it is at its highest point above the ground?

 - e. What is its maximum height above the ground?

 - f. What will be its speed just before it lands on the ground?