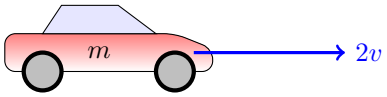
Name: Date: Period:

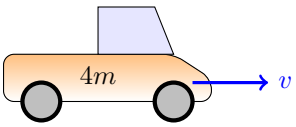
Energy #5

1. A car's speed is cut by 1/3. By what factor does the car's kinetic energy change?

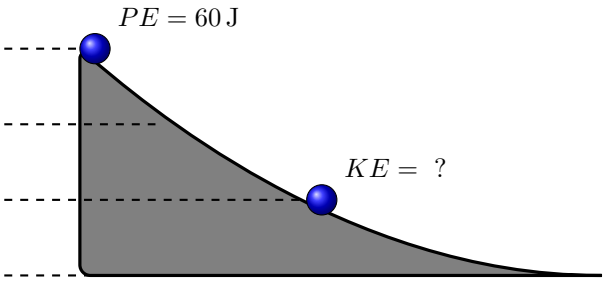
2. A car's speed is cut by 1/5. By what factor does the car's kinetic energy change?

3. A car has twice the speed of a truck. However, the truck has four times as much mass. Which vehicle has a larger kinetic energy?





4. A marble starts at rest at the top of a frictionless ramp with 60 J of potential energy. How much kinetic energy does it have when it has fallen 2/3 of the way down the ramp?



5. A loaded mining car has a mass of 1230 kg and is being lifted out of a mine shaft by a winch (a motor attached to a chain). It takes 240 seconds to lift the mining carthrough a vertical distance of 200 meters.

   (a) Calculate the work done by the winch.

   (b) Calculate the power output of the winch.

6. A 15-kg cart is moving at 10 m/s at the bottom of a ramp. How far up the ramp does it get if there is 120 J of work done by friction?