More Projectile Motion Horizontally Launched

1) A ball rolls off of a table with a speed of 3.2 m/s. The table is 1.5 m high.
   a) Sketch an image of the ball and label the sketch appropriately.
   b) Calculate the time that the ball is in the air.
   c) How far away from the base of the table does the ball hit the ground?
   d) Calculate the velocity that the ball will impact the ground.

2) A coin rolls off the edge of a table. The coin was travelling with a speed of 0.40 m/s. It lands 0.20 m away from the table leg (which is straight down from the table edge).
   a) Sketch an image of the coin and label the sketch appropriately.
   b) Calculate the time that the coin is in the air.
   c) How high is the table?
   d) Calculate the velocity that the coin will impact the ground.

3) A car travelling at 72 km/h drives off a cliff 400 m high.
   a) Sketch an image of the car and label the sketch appropriately.
   b) Calculate the time that the car is in the air.
   c) How far from the base of the cliff does the car hit the ground?
   d) Calculate the velocity that the car will impact the ground.

4) A car drives off a 90 m high cliff and lands 72 m from the base of the cliff.
   a) Sketch an image of the car and label the sketch appropriately.
   b) Calculate the time that the car is in the air.
   c) At what speed did the car drive off the cliff?
   d) Calculate the velocity that the car impacted the ground.

5) A cannon ball is shot horizontally at 30.0 m/s and falls for 5.0 s.
   a) Sketch an image of the cannon ball and label the sketch appropriately.
   b) How far does the cannon ball fall vertically?
   c) How far does the cannon ball move horizontally?
   d) Calculate the velocity of the cannon ball as it impacts the ground.

6) A baseball is hit horizontally. It leaves the bat with a speed of 40.0 m/s. The batter hit the ball at a height of 1.00 m above the ground.
   a) Sketch an image of the baseball and label the sketch appropriately.
   b) How long does it take before the ball hits the ground?
   c) What distance does it travel before it hits the ground?
   d) Calculate the velocity of the baseball as it impacts the ground.

7) For a horizontally-launched projectile, draw each of the following graphs:
   a) horizontal displacement vs. time
   b) vertical displacement vs. time
   c) horizontal velocity vs. time
   d) vertical velocity vs. time
   e) horizontal acceleration vs. time
   f) vertical acceleration vs. time