Late Work Replacement: Evel Knievel Project Guide | Physics

Objective:

To determine the horizontal distance (the range) your car lands from the ramp.

Part I: Speed of the car in the X direction.

Find the speed of the car. The distance it traveled was equal to 0.2 meters. Notice I have filled in the times for the car along with the distance between the photogates.

$\Delta x = .20$ $t_1 = .0625$ $t_2 = .0626$ $t_3 = .0627$ $t_{avg} =$	

Part II: How long it takes the car to fall. (I have given you the height of the table)

Since we know that V_x and V_y are independent of each other we know the time the car is traveling off of the end of the table is the same time it takes the car to simply fall off the end of the table.

With this in mind, we will need to predict this time by applying what you know about kinematic equations. First you will need to measure the height of the table (remember measure this to the third sig. fig). Once you have filled out the table, choose the correct kinematic formula, solve for t then plug-in the numbers. Do this in the space below.

$V_i =$ $V_f =$ $t =$ $\Delta y = 0.90m$ $a_g =$	

Part III: Determine how far the car traveled horizontally.

In part 1 you found the velocity in the x direction of the car. In part 2 you found how long the car was in the air. Now you are ready to determine how far the car traveled in that time. For this part you are simple re-arranging the speed formula to solve for distance. Do this in the area below.

This distance is your prediction of how far from the table your car will land.

Prediction in meters_____