

## Work Sheet

Student Name: \_\_\_\_\_

Team members:

1.- \_\_\_\_\_ 2.- \_\_\_\_\_

3.- \_\_\_\_\_ 4.- \_\_\_\_\_

Instructor: \_\_\_\_\_

### Background

Conservation of energy is used in this lab to predict the exit speed of a car sliding down a ramp. The actual exit speed is then used to calculate the energy due to friction, and the landing spot for the car.

### Introduction

### Analysis

#### Energy

Show, in detail, the analysis that leads to the formula for the prediction of the exit speed by using energy conservation ( $E_i = E_f$ ). Wait until you have the formula to plug in any numbers. Circle your numerical prediction and its units. This exit speed assumes no friction on the ramp!

Calculate the actual exit speed from the photogate time, and determine the frictional loss over the ramp.

## Projectile Motion

Show, in detail, the projectile motion analysis that leads to a formula for the prediction of distance  $X$  in Figure 5.1 of the lab manual. Wait until you have the formula to plug in numbers. Note: use the actual exit speed obtained from the photogate time and car length. Enclose your numerical value with the appropriate units.

## Conclusion