

All data are to be carefully recorded on these report pages. Be sure to include units! Much of the data is in the form of graphs which should be carefully sketched, labeled, etc.. Answer all questions on these sheets.

**B) The Range of the Motion Detector**

Method description:

Minimum accurate measurement = \_\_\_\_\_ Maximum accurate measurement = \_\_\_\_\_

Why is it important to keep this minimum and maximum value in mind throughout all experiments with the motion detector?

**C) Position, time, & velocity for a stationary object**



**My basic word definition of slope:**

**D & E) Position, time, & velocity for a slow and faster walk away from detector**



**My organized summary of important things about position and velocity and their graphs up to this part of the lab:**

Slow x-vs-t slope calculation:

Slow x-vs-t tangents & avg:

Area calculation for labeled interval of slow v-vs-t graph:

Faster x-vs-t slope calculation:

Fast x-vs-t tangents & avg:

Area calculation for labeled interval of faster v-vs-t graph:

**F & G) Position, time, & velocity for a slow and faster walk toward detector**



Slow x-vs-t slope calculation:

Slow x-vs-t tangents & avg:

Area calculation for labeled interval of slow v-vs-t graph:

Fast x-vs-t tangents & avg:

Faster x-vs-t slope calculation:

Area calculation for labeled interval of faster v-vs-t graph:

**My organized summary of additional important things about position and velocity and their graphs in this part of the lab:**

## H) Slowing down



How the x-vs-t slope changes as the cart slows:

Word description of x-vs-t graph shape:



Word description of v-vs-t graph shape:

What I believe causes the cart to slow down:

### I) Abruptly changing direction



Word description of the slope behavior as it corresponds to the actions of the cart:



Word description of the velocity graph as it corresponds to the actions of the cart—hint: divide the graph (and the motion) into segments.

## J) Speeding up



How the x-vs-t slope changes as the cart speeds up:

Word description of the x- vs-t graph shape:



Word description of the v- vs-t graph shape:

What I believe causes the cart to speed up:

