

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

Date: \_\_\_\_\_

Period: \_\_\_\_\_

# Car Lab #1

## Procedure:

- Find a spot on the hallway for your group and mark one-meter intervals on the floor with the dry-erase marker from zero to five meters.
- Set the car at the zero mark (the starting line)
- Run the car. Make a mark on the ground where the car is at 2, 4, 6, 8, 10, and 12 seconds.
- Measure how far each mark is from the starting point with your meter stick. *Make your measurements in meters.*
- Repeat all of these steps two more times so that you have a total of three trials
- Repeat all of these steps for the other car
- When you are finished, make sure to use a rag to erase all of the marks on the floor.

**Pre-Lab:** After reading the procedure, identify each of the following:

Independent Variables

Dependent Variables

Control Variables

## Data

Red Car:

Time (s)	Displacement (m)			
	Trial #1	Trial #2	Trial #3	Average
2				
4				
6				
8				
10				
12				

Blue Car:

Time (s)	Displacement (m)			
	Trial #1	Trial #2	Trial #3	Average
2				
4				
6				
8				
10				
12				

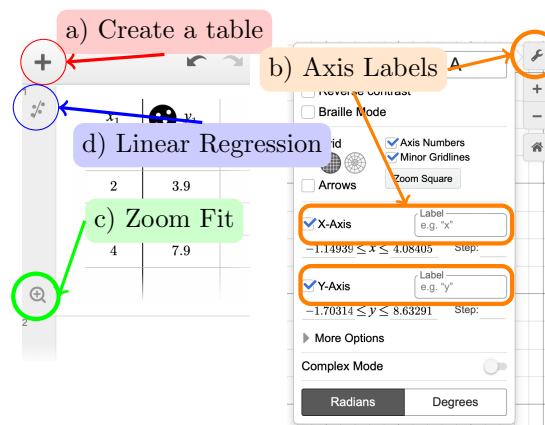
Name:

Date:

Period:

**Graph:** Go to [www.desmos.com/calculator](https://www.desmos.com/calculator) to graph your data. Make sure to submit a link to your graph on Schoology

- Start by making a table by clicking the “+” icon at the top left. You will need to create two separate tables.
- Make sure to label the axes using the wrench icon at the right.
- Zoom out so that you can see the whole graph and so that it fills the page. You can do this using the “Zoom Fit” option, but be careful that your fit does not cut off one of the graphs
- Create best fit lines for each graph using the “Linear Regression” tool
- Copy a link to your graph using the export button and clicking “Share a Snapshot”. Paste this link on the appropriate place in Schoology.



**Best fit lines:** Write down the equations for each of the best fit lines below:

Line #1:

Line #2:

## Analysis

- What is the physical meaning of the slope of each of the lines? Explain.
- Just by looking at the graph, how can you tell which car is faster?
- How does this graph show that these cars have a constant velocity?
- Are your results accurate? Explain.
- Are your results precise? Explain.
- What were some aspects that limited the accuracy of our graphs and/or our precision? What could be done to mitigate these in future experiments?