Force Cart Lab

Experiment 1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Mass of cart | Mass hanging | Sum of all masses | Force hanging | Acceleration | 1/sum of all masses |
| 550g | 10g |  |  |  |  |
| 540g | 20g |  |  |  |  |
| 530g | 30g |  |  |  |  |
| 520g | 40g |  |  |  |  |
| 510g | 50g |  |  |  |  |

Experiment 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Mass of cart | Mass hanging | Sum of all masses | Force hanging | Acceleration | 1/sum of all masses |
| 500g | 50g |  |  |  |  |
| 600g | 50g |  |  |  |  |
| 700g | 50g |  |  |  |  |
| 800g | 50g |  |  |  |  |
| 900g | 50g |  |  |  |  |

$$\% error= \frac{Experimental-Theoretical}{Theoretical} x 100\%$$

Steps for Excel:

1. Enter your data into a table in excel.
2. Highlight data by dragging a box around it.
3. Click on insert and pick scatterplot, choosing the first one.
4. Right click on your new graph and choose select data.
5. Remove all preset data choices.
6. Click on add in that same window.
7. For the y axis, choose your force for exp.1 or your acceleration for exp.2.
8. For the x axis, choose your acceleration for exp.1 or your 1/Σm for exp.2.
9. Back on your graph, right click one of your data points, choose trendline.
10. On the trendline window, make sure linear is picked and check the box for display equation on chart.
11. The slope for your equation on your graph should be Σm for exp.1 and F for exp.2.
12. These are your experimental data for your two trials to be used to find your %error.
13. Theoretical data can be found on your original data table.