

# Guide to formatting for the physics lab

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## EQUATIONS

- Type equations using insert -> equation in Word, Google Docs, etc.
- Equations must be on their own lines.
- Equations must be numbered/labeled.
- Identify any variables (unless you already did for a previous equation).
- Later in the report, refer to equations by number. Do not repeat equations.

Example:

The acceleration ( $a$ ) of an object is given by

$$a = \frac{F}{m} \quad (1),$$

where  $m$  is the mass of the object (in kg) and  $F$  is the net force on the object (in N).

## GRAPHS

FOR ALL GRAPHS:

- If a fit is used, show fit statistics with uncertainties.
- Graph must have all gridlines (vertical and horizontal).
- Add axis titles with units.
- Graphs should be big enough to be clear and easily read.
- Graphs must have captions with label/number (label as “Figure”).
- Please do not include a title at the top (only in the caption).

FOR GRAPHS WITH DATA POINTS (NOT CONTINUOUS COLLECTION):

- Points must have vertical and horizontal error bars.
  - If error bars are present but too small to see, add a note in the caption.
- Do not connect points with a line (no “connect the dots”).

Figure 1 is an example of a “continuous” collected graph. Figure 2 is an example of a data point graph.

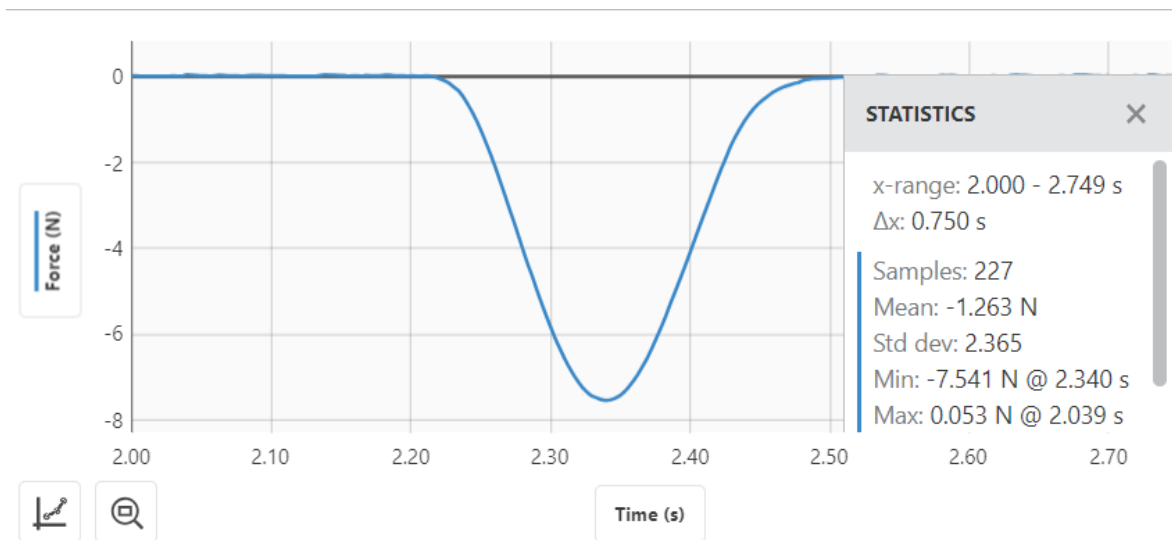


Figure 1: Force vs. time for a collision. This is a continuously-collected graph. It's okay to “connect the dots” in these ones.

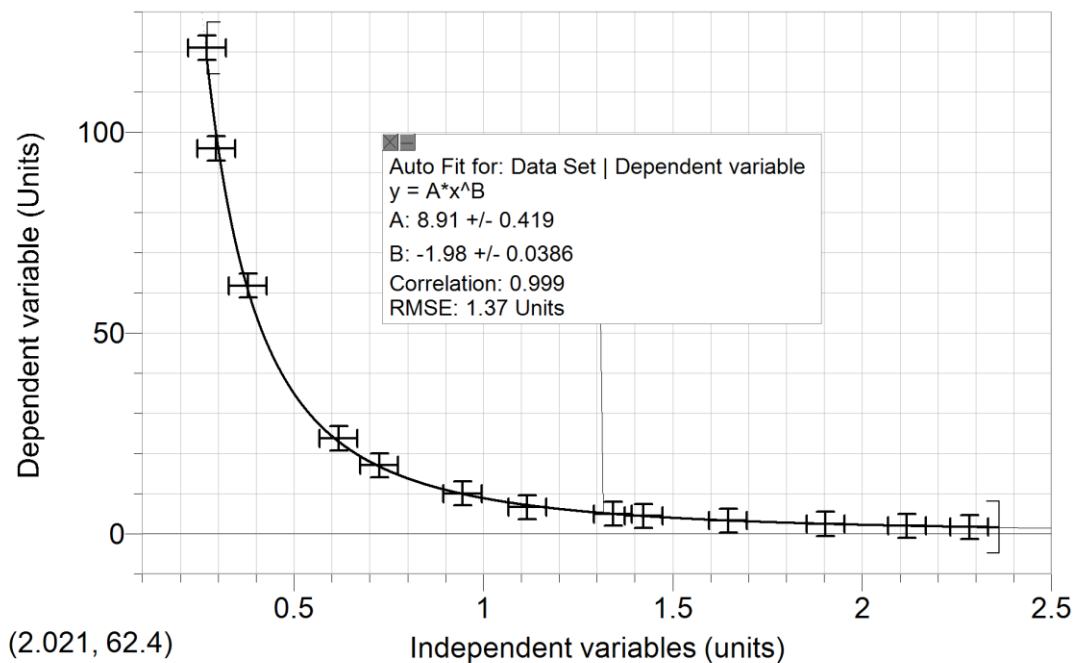


Figure 2: Dependent variable vs. independent variable for our first test. This is a non-continuous graph. Don't “connect the dots” in graphs like this. The data points have error bars showing uncertainty.

## IMAGES

- Images should be clear and easy to read.
- Images must have captions with label/number (label as “Figure”).
- Images must have sources in the caption (unless you created it from scratch yourself).
  - **Omitting image sources is plagiarism.**

Example:



Figure 3: An orange cat. Image source: <https://en.wiktionary.org/wiki/cat>

## TABLES

- No shading or color fill.
- Add units to column headers.
- Include uncertainty where applicable.
- Must include caption with label/number (label as “Table #”).

Example:

N	$\theta$ (rad)	trial $t_{1-3}$ ( $\pm 0.01$ s)	$t$ ( $\pm 0.01$ s)	$\alpha$ ( $\text{rad/s}^2$ )	$\pm \delta\alpha$ ( $\text{rad/s}^2$ )
1	6.28	3.37	3.28	1.17	0.04
		3.34			
		3.14			
2	12.6	4.70	4.58	1.20	0.07
		4.40			
		4.65			

Table 1: The motion of a rotating rod. We measured time for each number of rotations and calculated acceleration.