Physics II: BASIC RULES FOR CONSTRUCTING AND PLOTTING A GRAPH

0. NEATNESS COUNTS!!

1. When looking at a piece of graph paper, make sure to draw the axes so that the graph will take up anywhere from 75%-85% of the paper. This need not be exact. NEVER use the edges of the graph as your axes.

2. Remember that the horizontal axis is labeled with the independent variable, and the vertical axis with the dependent variable (unless you are told otherwise).

3. Decide how you want to label the numbers on the axes. The last number you put on each axis must be larger than your highest data value for that quantity.

4. It is strongly suggested that you do not physically write a number for each line. Rather, only write every other number to keep the writing neat.

5. Don’t forget to actually label the axis, including the units. Something like: Time (s)

6. Plot the points. Make sure to circle each point.

7. DO NOT CONNECT THE POINTS ONE AFTER THE OTHER. Draw the “best fit” line. If you think the points describe a straight line, use a straight edge. If it appears to be something like a half-parabola, draw a smooth, continuous line. In each case, the line should be as close to as many points as possible. Your only options are: straight line, or half parabola.

8. If it is a straight line, write an equation for that line in slope-intercept form. Once you are taught to linearize a graph, you will take curved graphs, force them into a straight line, and write the equation anyway.

9. If it is a straight line, use the slope and Y-intercept to write an equation in slope-intercept form. The equation will look something like: \[ y = (\text{slope})x + \text{Y-intercept} \] (don’t forget units). Instead of “Y” and “X”, you will but in a symbol for that variable (like “m” for mass, “v” for velocity, or “t” for time).

10. Somewhere at the top, write an appropriate title in the format: “A Plot of <<insert independent variable>> versus <<insert dependent variable>> for <<whatever object you were studying to get the data>>

11. If you are plotting two sets of data on the same graph, be sure to use different colors or different patterns in the line. Make sure to put a key somewhere on the graph.