

Guidelines for Making Graphs by Hand

Note: These guidelines will apply to any handmade graphs this year.

1. All graphs should be done by hand in pencil on graph paper.
2. Unless instructed to do so, draw only one graph per page.
3. The graph should use as much of the graph paper as possible. Carefully choosing the best scale is necessary to achieve this. The axes should extend beyond the first and last data points in both directions.
4. All graphs should have a short, descriptive title at the top of each graph, detailing what is being measured.
5. Each axis should be clearly labeled with titles and units.
6. Clearly label the scale of each axis. For instance, "1 square = 0.1 meters".
7. Never connect the dots on a graph, but rather give a best-fit line or curve.
8. The best-fit line should be drawn with a ruler or similar straight edge, and should closely approximate the trend of all the data, not any single point or group of points. (**Note: a best-fit line should only be drawn if there is a linear relationship between the quantities graphed**)
9. A best-fit line should extend beyond the data points.
10. The slope should be calculated from two points on the best-fit line. The two points should be spaced reasonably far apart. **Data points should not be used to calculate the slope.**
11. On a linear graph, draw the rise, Δy , and run, Δx , to form a triangle with the best-fit line. Be sure to label these values and include units.
12. The calculation of the slope, $\frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$, should be clearly shown on the graph itself. Units should be included, and value of the slope should be easily visible.
13. See the sample graph on the back which incorporates the above requirements.

EXPERIMENTAL RESISTANCE OF A "50 Ω" RESISTOR

