

Checklist for Graphs

Make sure to read and follow the directions in the graphing appendix of the lab manual.

- The graph is a full page.
- The graph has a descriptive title. It lists the y vs. x quantities and includes the reaction or situation. For example: "Absorbance at 630 nm vs. concentration of blue food coloring in the reaction of blue food coloring with bleach" or "mass of beaker and liquid vs. volume of liquid". The vertical axis is the y axis and is stated first, and the horizontal axis is the x axis.
- The axes are labeled with quantity and units.
- The numbers along axes are evenly spaced "round" numbers.
- The numbers shown along axes are not too close together.
- The scale along each axis is chosen to spread out the plotted points on the page.
- The 1, 2, 5 rule is followed (each square should be equal to some version of 1, 2, or 5: for example 1, 2, 5, 10, 20, 50, 0.1, 0.2, 0.5, etc. This means that it will be easy to estimate between the lines.)
- If the graph is done on a computer, both major and minor gridlines are shown for both axes. Double check to make sure that the minor gridlines follow the 1, 2, 5 rule.
- The plotted points are clearly shown.
- No plotted points are outside the boundaries of the graph.
- The labels (title, axes, etc.) are not cramped and are easy to read.
- If the graph is a linear relationship, a single straight line is drawn (using a ruler) that averages out all of the data. (Single points that don't fit the trend can be ignored.) If you are using a graphing computer program such as Excel, have it draw the best-fit straight line.
- If the graph is a curve, a smooth curve is drawn among the points.

Calculating the slope of the line

Please show this process and calculation even if you create the graph on a computer.

- The points chosen for the calculation of the slope are far apart on the graph. (Why?)
- The points chosen for the calculation of the slope are indicated clearly.
- The points chosen for the calculation of the slope are NOT data points. (Why?)
- The x and y values of each point are estimated correctly and units are included for each.
- The x and y values of each point have the correct precision. (Estimate to one-tenth of the smallest division. If each division = 0.1, then estimate to ± 0.01 . If each division = 2, then estimate to ± 0.2 . In this case, values from the graph should end in an even digit and have one decimal place. If the smallest division is 0.5, then estimate to ± 0.05 , and make sure the values estimated from this graph end in a 0 or a 5 and have two decimal places.)
- The slope calculation is shown clearly, with the correct **units** and the correct number of significant figures.
- All work is clear and easy to understand or follow.
- If needed, the y-intercept is calculated correctly and units are included.
- If needed, the equation of the line is expressed correctly, including appropriate numbers and units for the slope and the y-intercept.