

## Interpreting Graphs

- When reading values from a graph, approach it as you would any measurement. Include all certain digits and the first uncertain digit.
- To get the last digit (the uncertain digit), you must estimate between the lines of the graph or the measuring instrument. Do this carefully, because I will check your work. If you don't estimate between the lines correctly, points will be deducted.
- It is usually possible to estimate to the nearest one-tenth of the smallest division.
- If you are reading from a graph, and on one axis the smallest divisions are 0.1 mL, you should read the graph to the nearest  $\pm 0.01$  mL. Your readings should all have 2 decimal places.
- If you are reading from a graph and the smallest divisions are 0.02 g, then you should read the graph to the nearest  $\pm 0.002$  g. All readings should have 3 decimal places and should end in an even digit.
- If the smallest divisions are 5 mL, read to the nearest  $\pm 0.5$  mL. All readings should end in 0.5 or 0.0.
- If your point lies right on the line, you often have to include a zero at the end of the measurement to indicate the correct precision. (Careful here – on occasion, you might have to include two extra zeros. Make sure your number of decimal places is consistent with the uncertainty.)
- Also, when determining the slope of a graph, remember that the x and y values from the graph (usually) have units. Include those units in your calculation setup and answer. (Logarithms and natural logarithms do not have units.)
- When finding the slope, choose two points far apart from each other. (Why is this important?)
- When finding the slope, do not use data points – use points determined from the line. (Why shouldn't you use data points?)