Lab Report: Using Excel for Graphical Analysis of Data

**Turn in the graphs you made for ALL three parts in this assignment.**

For each graph make sure the following components are in the printout:

1. **Title for the graph**
2. **Labels for x and y axes (along with appropriate units when applicable)**
3. **Line equation and $R^2$ when appropriate.**

**Part 1: Simple Linear Plot**

- Which set of data is plotted on the y-axis? ____________________________
  the x-axis? ____________________________

- Record the following information:
  The equation of the fitted trendline ____________________________
  The value of the slope of this line ____________________________
  The value of the y-intercept of this line ____________________________

- Is the fit of the trendline to your data good (circle one)? Yes / No
  Explain why you think the line is a good fit to the data.

- Determine the temperature (in K) of the gas in the cold room when it has a measured volume of 10.5 L using
  a) Extrapolation and “eyeballing” ____________________________
  b) The equation of the trendline ____________________________
    Show your calculations for b) below.
**Part 2: Two Data Sets and Overlay**

- Record the equations of the trendlines fitted to
  
  Data set A: ________________________________
  
  Data set B: ________________________________

- Perform a simultaneous equations calculation to determine the x and y values for the point of intersection between these lines. Show your work below.

**Part 3: Statistical Analysis and Simple Scatter Plots**

- For the College #1 data set, record the following values (determined using Excel):
  
  the mean SO$_4^{2-}$ concentration ________________________
  
  the median SO$_4^{2-}$ concentration ________________________
  
  the standard deviation in the data set ________________________

- Calculate the standard deviation in the College #1 data set by hand. Show all your work below. Continue your work on an attached page if you require more space.
• Are there any outliers in the College #1 data set (circle one)? Yes / No
  If yes, which measurements are the outliers? ____________________________
  Show the calculations you used to identify the outliers (or, if none, how you determined that there were none).

Re-calculate the following values (using Excel) excluding the outliers:
  the mean SO\text{$_4$}^{2-} concentration ____________________________
  the median SO\text{$_4$}^{2-} concentration ____________________________
  the standard deviation in the data set ____________________________

• Create a scatter plot showing both the College #1 and College #2 data. Attach a printout of your graph to this report. Be sure that your axes are properly labeled, and that your graph has an appropriate title.

• Examine your plotted data. Which data set:
  has the larger standard deviation? ____________________________
  contains the more precise measurements? ____________________________