Data Analysis Worksheet

1. Create separate scatter plots in Excel of the spring deflection data you collected for each spring. Plot force (y-axis) vs. deflection (x-axis).

2. Fit a curve to each plot in #1. Display the equation for the curve and its respective plot. What is the stiffness of each spring? (include units in your answer)

3. Create a scatter plot in Excel of the spring deflection data you collected for all springs. Plot force (y-axis) vs. deflection (x-axis). Note: All lines should be on the same graph.

4. Answer the following questions about your graphs and data:

   a. Do the fitted curves (in #2) match the data well? Why or why not?

   b. Why is the curve linear in #2?

   c. Describe the relationship between the lines in #3. Are they the same line? Do they differ? If so, how are they different? If they are different, then explain why.

   d. List the springs in order from stiffest to most compliant using the spring constant values calculated in #2. Were your predictions before and after the activity correct? If not, explain what was incorrect.