

Instructions:

This cover page should be the first page, with your report attached after that.

Each person must write their own report, which must be word processed.

Use the section headings: **1. Question, 2. Method, 3. Analysis, and 4. Discussion.**

Your work will also be assessed based on critical thinking skills:

Evidence: base your conclusions on the experimental evidence you found.

Integration: combine information from different parts of the experiment logically.

Evaluation: Draw rational conclusions based on your experiment.

Grading Rubric: (Leave this for your instructor to fill in)

1. **Question.** State the hypothesis equations you are investigating. Discuss the quantities in the equations – which are the independent variables, which are the dependent variables? A clear, labelled diagram is a good idea. Based on the hypothesis equations, explain what quantities will go on the axes for each graph, and how you will identify which hypothesis best fits the data. Provide enough detail so that someone not familiar with the experiment can understand what you are interested in finding out. Write a clear paragraph, in full sentences.

_____/5pts

2. **Method.** Discuss details of each measurement in the experiment. Mention anything that needs particular care. Discuss how many significant digits can be justified for each measurement. The measurements you took are the evidence upon which you draw your conclusions. Provide a critical discussion of how reliable they are.

_____/5pts

3. **Analysis.** Show the table with your measured quantities, and write a brief explanation of what is included in each column. Show the graphs you have made to test your hypotheses. For each, discuss whether the experimental data follows a linear trend, and thus whether it is consistent with the hypothesis. If this is the case, extract the values of the constants and report them clearly. Make sure quality standards are met for tables and graphs. Correct use of units and significant figures is expected. **Refer to the handout from the first graphing lab** to review details of how graphs are used to find experimental results. Integrate the information you found from your tables, graphs, and calculations to form a logical sequence.

_____/5pts

4. **Discussion.** Discuss whether your data is consistent with, or in conflict with, your original hypothesis equations. Give quantitative conclusions. Justify your claims by referencing the evidence you found in the experiment. Evaluate your results critically. This should include a discussion of weaknesses in your experiment and how you might change things in future.

_____/5pts

Use full sentences and clear language throughout. A person that was not in the lab ought to be able to read your report and understand reasonably well what you did.