Name: _____ Hour: _____ Group Number: _____
Lab Title: _____
Purpose: _____

Note: Multi-line answers require discussion and explanation, one word answers are in no way sufficient. All answers should specifically address the lab (give numerical values where possible and refer to possible unique actions taken by your group).

I. Introduction:

The **Independent variable** in this investigation was _____, measured in units of _____.
Our method of collecting data for the Independent variable was:

_____
_____
_____
_____

Specific Reasons for limited precision or possible inaccuracy in measurement of IV:

_____
_____
_____ Estimated +/-: _____

The **Dependent variable** in this investigation was _____, measured in units of _____.
Our method of collecting data for the Dependent variable was:

_____
_____
_____
_____

Specific Reasons for limited precision or possible inaccuracy in measurement of DV:

_____
_____
_____ Estimated +/-: _____

Scientific Constants for this investigation are (give names and values):

_____

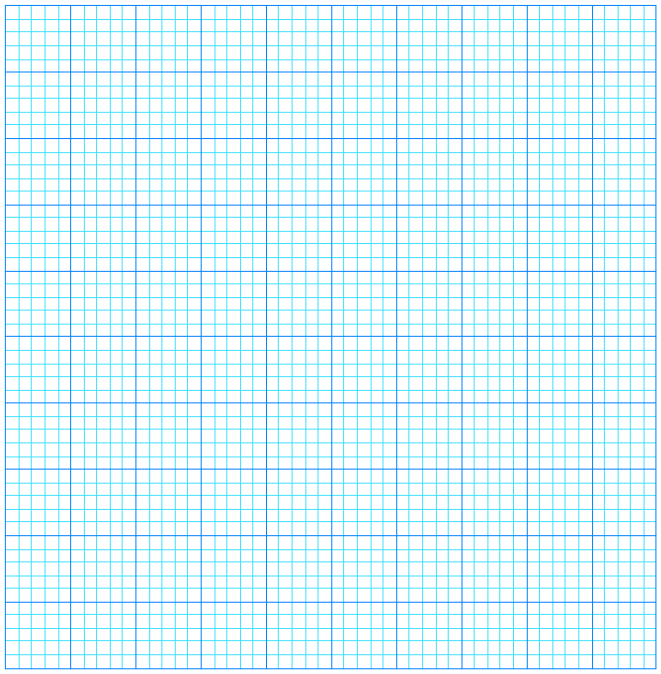
Sources of uncertainties for our constants include:

_____

II. Data:

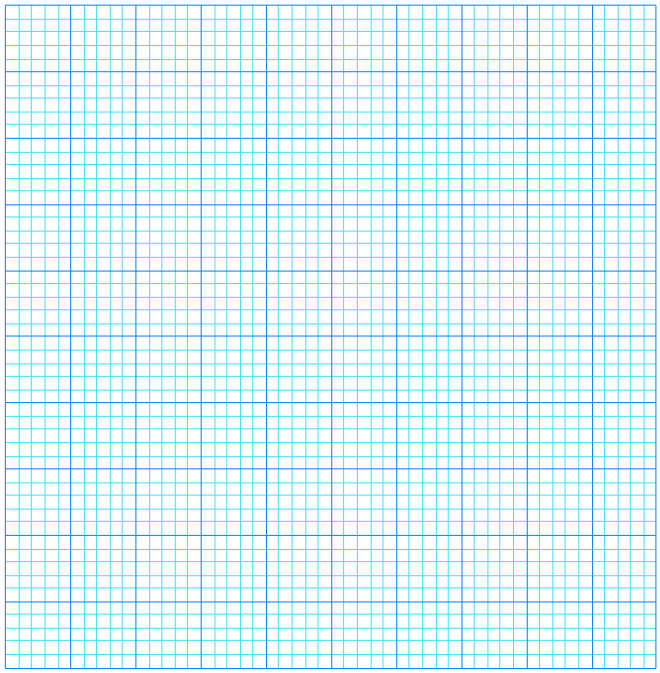
Measured Independent Variable	**Measured Dependent Variable**				**Calculated value (if needed)**	**Calculated value (if needed)**
Name: _____ Units: _____	Name: _____ Units: _____				Name: _____ Units: _____ Equation:	Name: _____ Units: _____ Equation:
	T1	T2	T3	Av.		

Original Graph: _____(y) versus _____(x)



Name _____ (units_____)

Linearized Graph (if needed):_____(y) versus _____(x)



Name _____ (units_____)

III. The Empirical Equation (derived from our data):

(remember to put units on the numbers, if data is linearized it will fit the form y = mx +b)

IV. Discussion of Results: {circle answer or write in blanks}

A. Relationship:

The expected/theortical (textbook equation- written to best parallel the empirical equation) result is:

This equation indicates we should expect a (proportional, linear, equal) relationship between _____ and _____.

Our results show a (proportional, linear, equal) relationship between _____ and _____. Our found **relationship** compares (favorably, unfavorably) with the expected results.

B. Analysis of Y-Intercept Results

The y-intercept of our found equation is _____ (y-intercept value, could be negligible, + units) meaning when _____ (x-axis item) is zero, _____ (y-axis item) is _____ .

The expected results predict a beginning value of _____ (y-intercept of textbook equation- or real world value). Our results have an error of _____ with this prediction. Calculation or discussion:

_____

_____

_____

■Show calculation. If you do not have numbers to compare discuss whether or not the y-intercept value is reasonable.
■% error calculation: | predicted-ours| /predicted * 100 = % error
■if accepted value is zero give simple difference |predicted-ours|

C. Analysis of Slope Results

The slope of our found equation is _____ (slope value + units), this tells us how much _____(y-axis item) changes for every _____ (unit of x-axis) change of _____ (x-axis item).

The expected results predict a rate of change of

_____ (slope of textbook equation- or real world value), our results have an error of _____ % with this prediction. Calculation or discussion:

_____

_____

■Show calculation. If you do not have numbers to compare, then discuss whether or not the slope value is reasonable.
■% error calculation: | predicted-ours| /predicted * 100 = % error
■if accepted value is zero give simple difference |predicted-ours|

D. Discussion- Errors

Compare expected results with those obtained.

If there were differences, how can you account for them? Saying "human error" does not provide sufficient information, it also implies you're incompetent. Be specific; for example, the instruments could not measure precisely, the sample used was not pure, or theoretical values did not take account of friction. Once you state the largest possible source of error, elaborate on its meaning, and then discuss WHY it is a reasonable source for the difference you are seeing. Wherever possible use numbers. For example: The theoretical equation assumes no friction. The pulley we used had a small amount of friction, which would cause the measured acceleration to be lower than expected. Our measured acceleration is 5% **lower** than expected; therefore friction is a reasonable source of error. (Note: if measured acceleration is higher than expected, friction would not be a reasonable source of error).If differences are very small then analyze the strength of your experimental design. Either way- Pick the one thing that most influenced your lab results—then EXPLAIN IT!

_____

_____

_____

_____

_____