Lab Report Grading Rubric (page 1) and GOOD/BAD report examples (page 2)

Your lab reports should be compositions (meaning using full sentences, proper grammar, etc.) describing the experiment you conducted, with presentations of the data as necessary. This should be in the vein of scientific writing, where you use a little more formal language and abstain from comments in the first person.

Labs will be awarded 10 points each. The following rubric defines how your points will be awarded. Each bulleted item is a graded element. The first four of these are sections that should be explicitly presented in your report with separate section headings.

Title of lab that includes (will not be graded if not included):

- Names of individuals whom conducted the experiment
- Title of the Lab
- Lab Section

Introduction (2 points)

- Introductory statement about the experiment, namely some statement about the question being answered or the model that is being tested.
- Brief summary of main findings from this research.

Procedures & Equipment (1 point)

- Brief statement of the equipment used.
- Briefly describe, via a bulleted list, what data was collected, and how it was collected for each part of the lab.

Data & Analysis (3 points)

- Present data collected in a nicely formatted table and/or plot (as necessary).
- Analysis, either in the form of calculated values or comparison of experiment & theory, are correctly and clearly presented.
- Address uncertainties in measurements; you may include human error, but it must be specific (i.e. parallax, reaction time, etc).

Conclusions (2 points)

- The concluding statement (perhaps multiple paragraphs if necessary) should clearly state the main findings.
- If there is a theory to compare to, a statement about the quality of agreement between the two should be presented. If there is not a theory to compare to, a comment on the observed trends should be made, and discussed in light of the uncertainties of your measurements.

Gestalt (2 points)

- This is **not** a section to be included in your lab. It is a grading category for overall composition, which includes things like sentence construction, grammar, and quality of plots.

Introduction

BAD: The purpose of this lab was to introduce SUNY Cortland students to new measurement tools for measuring the sizes of various objects.

GOOD: The purpose of this lab is to derive an estimate of π from measurements of the sizes and masses of a set of aluminum disks. We found….

Procedure & Equipment

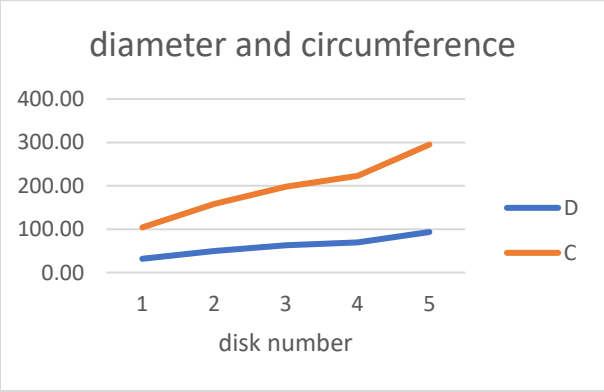
BAD: We first took the small disk and measured its diameter using calipers and then measured its circumference using a tape measure, which had a lot of uncertainty because it was moving around. We then wrote these numbers in a table and estimated the percent uncertainty in each number, and then divided the circumference by the diameter to calculate pi=3.2457 for disk #1.

GOOD: A set of five aluminum disks of different sizes were examined. Each was characterized by its mass, thickness, diameter, and circumference.

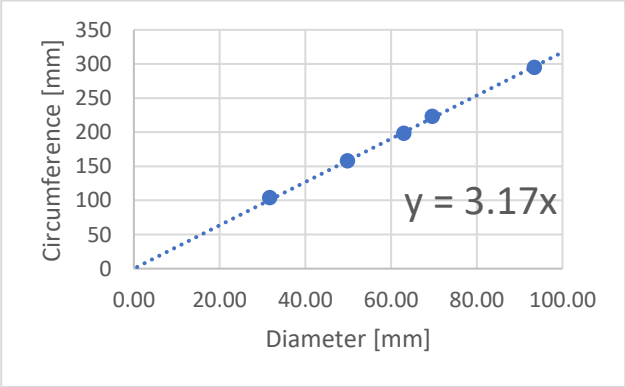
- The masses were measured using a triple beam balance (accuracy of 0.05 g)
- The thicknesses of the disks were measured using a micrometer (accuracy of 0.005 mm)
- The diameters were measured using a pair of Vernier calipers (accuracy of 0.05 mm)
- The circumferences were measured using a tape measure (accuracy of about 0.5 mm)

Data & Analysis (these plots could be larger)

BAD:



GOOD:



Conclusions

BAD: In this lab we measured the circumference and diameter of circles and found pi=3.1737842, which agrees with the equations for circles within percent uncertainty.

GOOD: From a series of measurements of the mass and sizes of a set of aluminum disks we found an average value of π=3.17. This finding agrees with the theoretically derived value of pi=3.14, within the uncertainty of our measurements. The most uncertain measurement in our experiment was that of the circumference. Finding a better tool or method for measuring the circumference could significantly improve the accuracy of all of the data, and therefore of the value of pi derived from these measurements.