# Lab 1: 225L Graphical Analysis

Experiment for Physics 225 Lab at CSUF

## What You Need to Know

## What You Need to Do

### Part 1: Cartesian Plots

#### Hand Drawn Plot

Write your names on the physical graph paper, you’ll turn it in at the end of the lab with your report.

#### Excel Plotting

Part 1- Excel Plotting Completed Graph

Compare the difference between your “eyeball fit” to the data, slope and intercept, and your trendline fit values from Excel for the same set of data. Which one do you have more confidence in?

#### Effect of deviation and noise on the determination of fit parameters

Part 1- Completed Student Table 2

What can you conclude about the possible accuracy of the determination of the slope and intercept vs. the variation of the noise for these other cases?

### Part 2 – Linearization and Log-Log Plotting in excel

#### Linearization

Apply Logs to both sides of the equation with $b=0$ and use the properties of logs to get this into linear form.

$$y=bx^{3/2}$$

Part 2- Linearized Graph

Compare the slope of your graph to the linearized version of Kepler’s law and find a % difference. You may need to right click -> format trendline label, change to number, and show at least 6 decimals(a %0 difference will not be accepted, everyone is using the same data we know what it should be)

#### Log-Log Axis

Part 2 – log-log axis graph with nonlinear trendline.

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Compare the exponent in your fit graph to the exponent in Kepler’s law and find a % difference. Again you may need to right click -> format trendline label, change to number, and add decimals until you get to the difference.

## Conclusion

Follow the lab report guide to write a conclusion on this lab.

Submit any excel or graphical analysis data your instructor requests along with your report. Hand in your hand drawn graphs with all partner names on them as well.

Conclusion