

UNC Worksheet

revised April 06, 2006

Your Name: _____ Signature: _____

Lab partner(s): _____

Course & Section: _____ Station # _____ Date: _____

Section D. Analysis

1. Report your estimated uncertainty, the mean, standard deviation, and standard error for each of the five measurements:

Measurement	Est. Uncert.	Mean	St. Dev.	St. Error.
length				
diameter				
mass				
period				
weight				

Can you explain any differences between your estimated uncertainties and the standard errors of your measurements?

Section E. Propagation of Uncertainty and Discrepancies.

2. Use your mean values of length and period above to find g :
3. Use the derivative method to determine an estimate of δ_g . (Optional for PHYS115 students.)
4. Use the calculation method to determine an estimate of δ_g .
5. Report your value of g as a measurement interval. _____ \pm _____ (units)
6. What is the discrepancy from the accepted value? _____ \pm _____ (units)
7. Does your discrepancy lie outside the expected error? If it does, can you say anything about possible reasons?

Section F. Origin Exercise.

8. Report your mean, standard deviation, and standard error for a_A (from direct calculation).

9. Report your value for a_A from direct calculation as a measurement interval.

_____ \pm _____ (units)

10. Report your mean, standard deviation, and standard error for a_N (from direct calculation).

11. Report your value for a_N from direct calculation as a measurement interval.

_____ \pm _____ (units)

12. Report your value for a_A from your best fit line as a measurement interval.

_____ \pm _____ (units)

13. Report your value for a_N from your best fit line as a measurement interval.

_____ \pm _____ (units)

14. Attach your *Origin* graphs to this sheet.

15. Which model more closely fits the data, Aristotle's or Newton's? (circle one)

Aristotle's

Newton's

Both fit the data equally well

16. What is your evidence that one is a better fit than the other (or they are equally good)?

17. Report a value of the acceleration due to gravity at Europa's surface based on Dr. Taylor's data to your supervisor at Glenn Research Center.

_____ \pm _____ (units)

18. Justify this choice of values.

GRADE: _____
(out of 20 points)

GRADED BY _____
(TA's initials)