

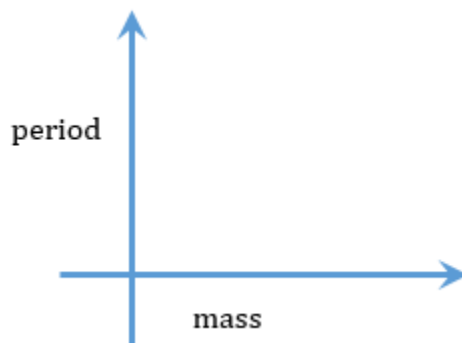
Name: _____ Section #: _____ Date: _____

The Pendulum

Part 1

Prediction

For Part 1 of the experiment, make a sketch of the graph you think will be produced by the simple pendulum made from the washers swinging on the string.



Run Part 1 of the experiment. Be sure to save a screenshot of your graph with the curve fit parameters applied. Be sure that all parameters are visible on the graph. Have one of your group members log into their WebAssign account. Complete all required calculations there before you proceed to Part 2.

After the Experiment

Discuss the view of the graph produced by the simple pendulum made from the washers swinging on the string. Does the graph look as any of you expected it to look? How would your graph be different if this experiment were done on the moon? Sketch an additional line on your graph that represents this. Write the major points of your discussion below.

Part 2

Prediction

Describe the change in the period you expect to see, if any, when the initial angle of oscillations is changed from 3° to 70° .

Run Part 2 of the experiment. Be sure to save a screenshot of your bar graph. Complete all required calculations in the Inlab before you proceed to Part 3.

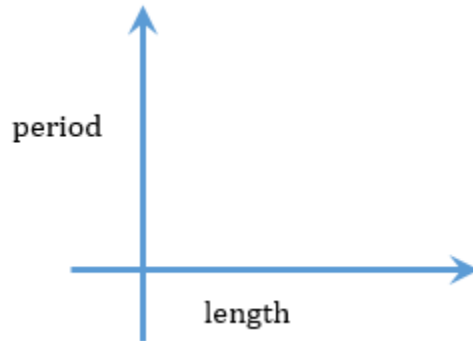
After the Experiment

How does your experimental data correlate with equation 5 in the lab manual? Write the major points of your discussion below.

Part 3

Prediction

For Part 3 of the experiment, make a sketch of the graph you think will be produced by the simple pendulum made from the washers swinging on the string when the length of the string gets changed.



Run Part 3 of the experiment. Be sure to save a screenshot of your graph with the curve fit parameters applied. Be sure that all parameters are visible on the graph. Have one of your group members log into their WebAssign account. Complete all required calculations in the Inlab before you proceed.

After the Experiment

Discuss the view of the graph produced by the simple pendulum made from the washers swinging on the string. Does the graph look as any of you expected it to look? How would your graph be different if this experiment were done on the moon? Sketch an additional line on your graph that represents this. Write the major points of your discussion below.

Data Analysis. Calculations.

Show all your work (**equations and calculations**) that you did to get the answers submitted in each part of the Inlab.

Part 3

Show your calculation of gravitational acceleration using the slope of the T vs. \sqrt{L} graph.

Show the calculations for the uncertainty and percent discrepancy between your experimental value and the theoretical one ($g_{\text{theo}} = 9.81 \text{ m/s}^2$).

Part 4

Show your calculation of the theoretical period for a chosen length.

Show the calculation of the percent discrepancy between theoretical and experimental values of the period.

Calculate the number of oscillations that will be completed within the number of seconds given in your inlab if the length does not change.

Have your TA sign this worksheet below and then upload it to the Inlab.

TA Signature: _____