

Centripetal Force Lab

Procedure

Briefly, but completely, describe the procedure for this lab – and include a labeled sketch.

Data

Bob Diameter _____

Mass _____

F_g _____

T	r	t	v

Graphs

Using appropriate scales, labels and units, graph your data. Use your work from Question #2 and #3 to figure out which variables to use on the appropriate axes to make the graph come out linear.

Questions

- 1) Calculate weight of the bob and velocity from measured values. Show one example of each calculation. Complete the data table column for velocity.
- 2) Draw a free body diagram for the pendulum bob at the lowest point of its swing. Use your diagram to write a net force equation using the variables T , F_g , m , v and r . Solve the equation for T .
- 3) Your equation from #2 is analogous to the equation $y = m x + b$. The slope should be the mass (m) of the bob, and the y-intercept should be the weight (F_g) of the bob. Use this info to determine which variables to use for the y and x-axis of your linear graph.
- 4) After graphing your data, find the equation of your best fits line. Show your work.
- 5) The slope and the y-intercept of your graph correspond to values you measured or calculated while doing this lab. Using the measured/calculated value as the accepted value and your graphical value as the experimental value, find the percent error for both.

Error Analysis

Thoroughly explain what the main sources of error are for this lab, and how you would correct them.