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**PH 1140 Transverse Standing Waves - Lab Report**

1. (Here’s where you should place a copy of your data table.)
2. (Immediately below is where you should place a copy of the μ average and standard deviation obtained in the experimental portion of this work.) The main point of this experiment was to show you that you could determine the mass density (mass per unit length) of a string using the standing wave resonance condition. From the average and standard deviation calculations based on the several standing wave resonances that you set up on your string, write down the mass density value with uncertainty and proper units for the string used in your experiment (the uncertainty in this case is simply the standard deviation). (Use industry-standard form: uncertainty is rounded to one digit, unless that digit is one, in which case you round the uncertainty to two digits; the main value is rounded to the same decimal place as the uncertainty.)
3. Given the expression Δμ/μ = −ΔL/L, Comment on whether Δμ due to string stretch is a significant or insignificant effect compared to the mass density uncertainty in #2.
4. Another useful property of experimental data to examine is whether there are RANDOM or SYSTEMATIC trends within the data set. Considering the several values of mass density (μ) as a function of decreasing mass, do those values vary randomly, one to the next, or does there appear to be a monotonic trend of ever decreasing (or increasing) values as a function of M? Or maybe a portion of the mass density values – IN ORDER – appear randomly distributed, and the remaining portion appears systematic. (Any systematic trend suggests that there is something interesting going on in the experiment that maybe ought to be looked at further!) But for now, simply comment briefly on whether your mass density values are randomly distributed, systematically distributed, or a little of both. Indicate your reasoning, also briefly.