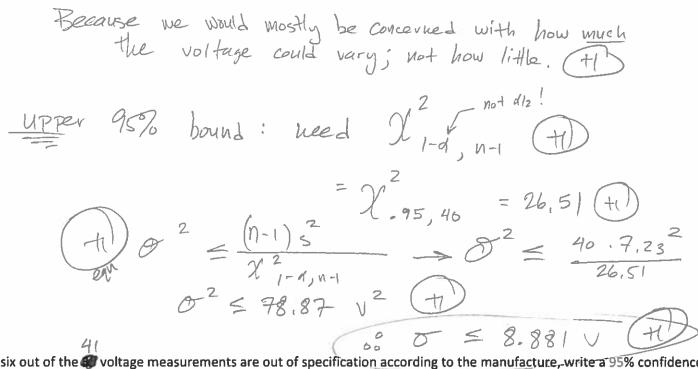
1)Explain how the Central Limit Theorem facilitates the construction of a confidence interval on mean.

2) The B+ power supply voltage in a tube guitar amplifier may vary according to a number of factors, including AC line voltage, winding tolerances of the power transformer, bias currents of the tubes, and thermal drift. A sample of 4/
voltage measurements was taken and the results are  $\vec{x} = 441.2$  V and s = 7.23 V, with unknown population variance.
Write a 95% confidence interval on the population mean B+ power supply voltage. Please include a unit with your answer.

Now write a 95% prediction interval on the measured power supply voltage. Please include a unit.

Write an upper 95% confidence bound on the standard deviation of B+ power supply voltage. Why would an upper confidence bound be appropriate for this parameter?



If six out of the g voltage measurements are out of specification according to the manufacture, write a 95% confidence interval on the proportion of out-of-spec voltages. Also determine the minimum sample size needed for the width of this C.I. to be  $\pm 1\%$ .

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