

DRIVEN LRC LAB PRACTICAL

Ken Cheney
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PRACTICE

Practice all you want, with a partner if you wish.

DESTROY

Call the teacher over to take apart your circuit and turn all knobs.

The teacher may ask what values of resistance, frequency, etc. worked well and assign similar values for the test.

Hint: Chose values of frequency, resistance, capacitance, and inductance that will make measurements of all all voltages and phases possible. Choose so the reactance of the capacitor and inductor differ by about a factor of two and the resistance of the resistor is about the same magnitude as the reactance's of the capacitor and inductor.

MEASURE, PLOT, AND CALCULATE

Measure all voltages and phases.

Plot a large, neat phaser diagram.

Calculate the theoretical voltages and phases.

Hint: Measure the voltage across the resistor and use $I=V/R$ to find the common current.

Put the data in a neat table with percent errors.

Add the theoretical phaser diagram to the experimental phaser diagram. One plot for both. They should have the same V for R .

SHOW THE TEACHER

Call over the teacher and show how you made the measurements and calculations.

Expect to show how to measure voltages and periods.

Measuring phases.

You can gain or lose points depending on how many methods you can demonstrate for measuring phases. These might include dual trace, phantom trace (with triggering), Lissajous figures, and Z axis.

- Four methods: add + to grade
- Three methods: keep grade
- Two methods: subtract - from grade

- One method: subtract one letter grade

TIME AND GRADES

- Early: 10 points extra credit
- The week the practical is scheduled: A plus possible
- The next week: B possible
- During Finals Week: D possible

GRADING CONSIDERATIONS

- How well do you set up the oscilloscope and circuit?
- How well do you make the measurements? Using the whole screen? Knobs set to calibrate? Measuring from zero crossings?
- How neat and complete are your table, calculations, and phaser diagram?