

Student: Ty Davis

Course: ECE 3210

Subject: Lab 1, Lab Basics

Date: September 3, 2024



1 Introduction

This is the first lab of the semester in which we cover the lab basics. We will be doing a brief analysis of a circuit and then measuring and comparing the results of our computation.

2 Theory

The theory section of the memo should cover the theory behind the lab. For example, if there is a derivation needed, include that here. When you write up a derivation, you don't need to show every single step of mathematical manipulation, but you need to include enough steps such that a typical engineer could follow it. You must typeset your equation using the \LaTeX equation editor to make it look good.

For example, suppose we need to compute the complex exponential Fourier series coefficients for a saw-tooth waveform. We know that $T_0 = 2$ and $\omega_0 = \pi$. We write out the integral we need to solve

$$D_n = \frac{1}{2} \int_0^2 t e^{-j\pi n t} dt. \quad (1)$$

We don't need to go through and show every step of the derivation. It would be sufficient to say that solving the integral yields

$$D_n = \frac{j}{\pi n}. \quad (2)$$

3 Results

The results section covers the results from the lab. Your data will mostly be represented in plots and tables. Include those figures AFTER the main body of text on a new page. Data interpretation (what the plots *mean*) should be reserved for the Conclusions section of the memo. You should comment on the trends of what you have seen, but do not explain *why* you are seeing them in this section.

4 Discussion and Conclusions

The conclusions section is for interpreting the data. If you see a trend in your data, explain why you see it in this section. Use the theory you learned in class in your explanation.

As a final note, you are expected to use this document as a template for your lab submissions. You are welcome to upload this to overleaf to edit/compile the document. Or you can work locally using whatever flavor of \LaTeX compiler you prefer. All you need to do is to upload the document (and not the \LaTeX source) to Canvas.

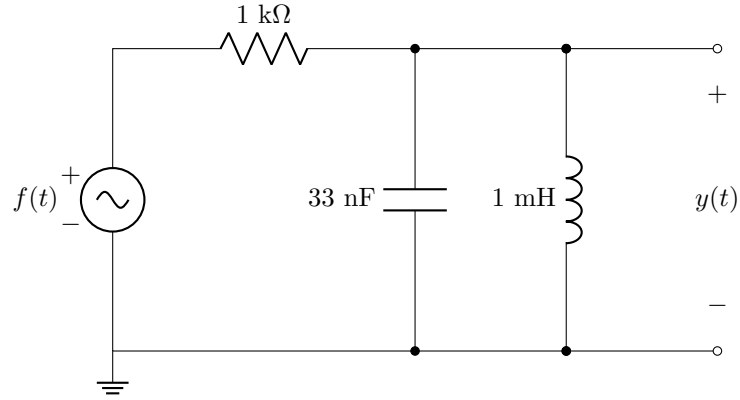


Figure 1: Circuit for analysis in the main part of the lab.

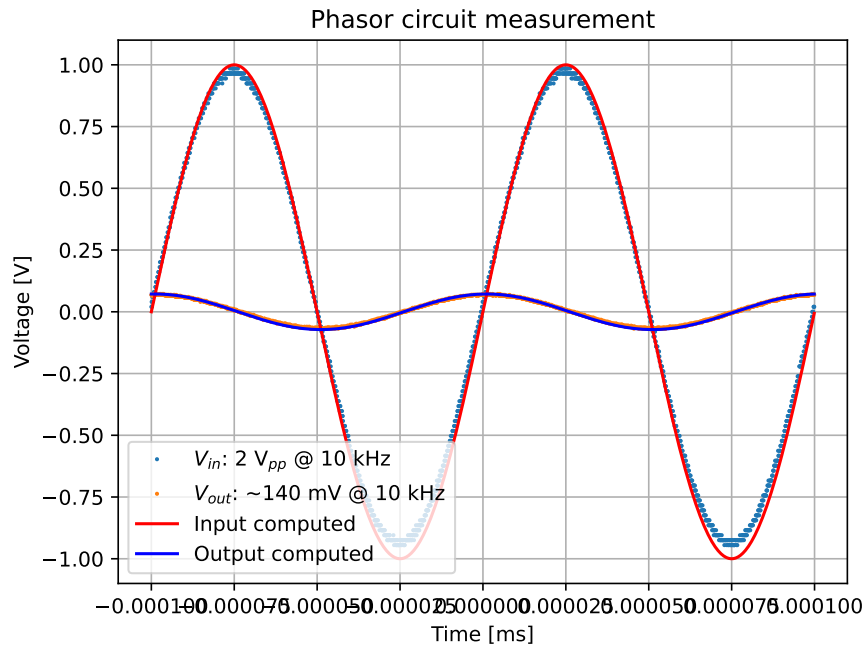


Figure 2: Plot for the circuit analyzed in Fig. 1

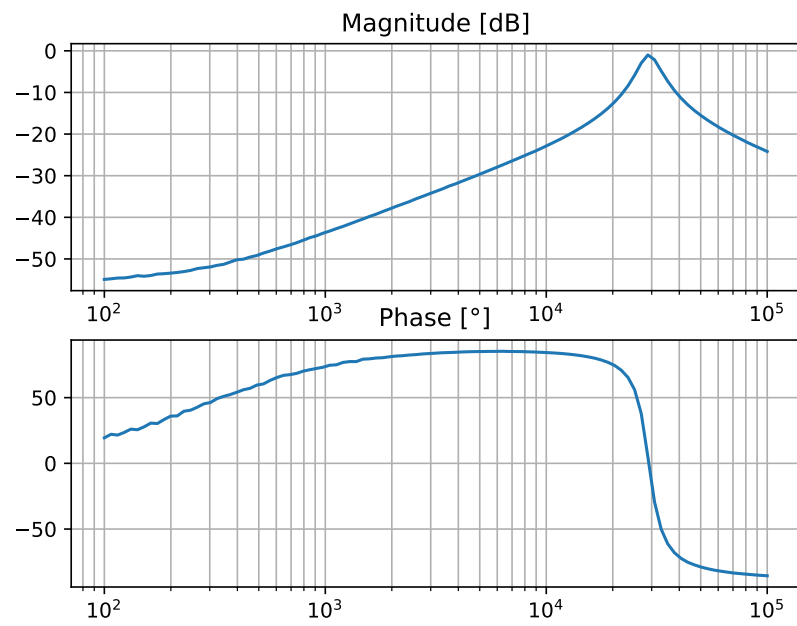


Figure 3: Bode plot of the frequency analysis for the circuit in Fig. 1