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Lab Report 5

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Objective:

The objective of this lab is to study some of the op amp configurations commonly found in practical applications and also investigate the non-idealities of the op am such as finite Gain-Bandwidth product and slew rate limitations. The circuits studied will include an integrator, a differentiator, a non-inverting amplifier and a unity-gain buffer

Intro:

To start, we will build the circuits in multisim using our calculated values in order to see what are the expected results. After that, will build all of the circuits on the breadboard in order to test if what we see in the simulations is actually correct.

Calculations:

Simulations

Experimental Plots

Conclusions:

Between the calculated and simulated values, most of my calculations matched my simulations except for when I calculated the output voltage for the lossy integrator and the pseudo differentiator. This was most likely caused by me doing the calculations in correctly.

Most of the simulation plots matched with the experimental plots for all but the non-inverting op amp. For whatever reason, the bode plots for the experimental plots not only did not match, but putting in different resistor values did not changed the plot at all. I thought it may have been that one of the op amps had failed and tried the experiment with a different op amp with the same results. I have concluded that with a real non-ideal op amp, the gain that can be produced from a circuit has a certain threshold that cannot be exceeded.