UNIVERSITY OF CALIFORNIA AT BERKELEY
College of Engineering
Department of Electrical Engineering and Computer Sciences

EE105 Lab Experiments

Report 7: Frequency Response

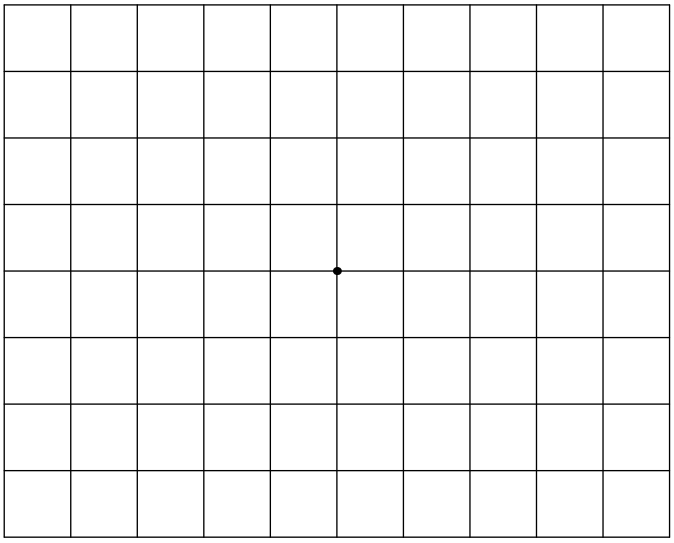
Name:

Lab Section:

3.1.3 Measure I_{BIAS} and the DC voltage at V_{OUT}.

$I_{BIAS} =$
$V_{OUT} =$

3.1.4 Sketch the waveforms at v_{IN} and v_{OUT}.



3.1.5 What are the magnitude and phase of v_{out}/v_{in} measured from the oscilloscope?

$\lvert v_{out}/v_{in} \rvert =$
$\angle v_{out}/v_{in} =$

3.1.7 What are the magnitude and phase of v_{out}/v_{in} measured from the software? How different is this measurement compared to the one obtained with the oscilloscope?

$|v_{out}/v_{in}| =$

$\angle v_{out}/v_{in} =$

3.1.8 What is the frequency at which the gain drops by 3 dB? What is the phase at this frequency? Is the phase consistent with the magnitude?

$f_{-3\text{ dB}} =$

$\angle v_{out}/v_{in}|_{f_{-3\text{ dB}}} =$

3.1.9 Attach the Bode plot to the Lab Report.

3.2.2 Frequency response of the amplifier with a Miller capacitor.

$f_{-3\text{ dB}} =$

$\angle v_{out}/v_{in}|_{f_{-3\text{ dB}}} =$

Attach the Bode plot to the Lab Report.

3.2.3 How does the dominant pole of this amplifier compare to the dominant pole of the previous amplifier? Is this expected?

3.2.4 If we are to design an amplifier with high bandwidth, is a transistor with large C_μ desirable?

3.3.2 Frequency response of the amplifier with an output capacitor.

$f_{-3\text{ dB}} =$

$\angle v_{out}/v_{in}|_{f_{-3\text{ dB}}} =$

Attach the Bode plot to the Lab Report.

3.3.3 How does the dominant pole of this amplifier compare to the dominant pole of the previous two amplifiers? Is this expected?

3.4.2 Frequency response of the common collector amplifier.

$f_{-3\text{ dB}} =$

$\angle v_{out}/v_{in}|_{f_{-3\text{ dB}}} =$

Attach the Bode plot to the Lab Report.

3.4.3 How does the bandwidth of this amplifier compare to the bandwidths of the previous amplifiers?