Circuits 215  
Lab V  
Transfer Functions and Bode Plots.

For this lab we will calculate the transfer function for a simple circuit.

1. Using the transfer function you should graph a straight line estimation of the bode plot for the frequency response of the circuit in your lab book. Keep in mind that Frequency in Hz = Frequency in (Radians/Sec) / (2 Pi).

2. Using LTSpice simulate the circuit above. Your simulation will be ran using AC Analysis. This is AC analysis runs a simulations of the circuit using Phasor analysis for each frequency in a given frequency band. (Start Freq. and Stop Freq.) The number of points per decade determines the resolution at which data points will be taken. Straight line estimation is made between data points. After plotting the Bode plot take note of differences between your straight line estimate and the simulation.
   a. Type of Sweep = Decade  
   b. Start Freq. = 10hz  
   c. Stop Freq. = 10Khz  
   d. Number of points per decade 30

3. Lastly use the Transfer function that was calculated above to plot the Bode plot using Matlab. Once again compare the plots and not any differences.
   a. Num = [   ]  
   b. Den = [   ]  
   c. TF = tf(Num,Den) (create transfer function using Num and Den)  
   d. Bode (Num,Den) (plot bode of give transfer function)