

**EE322 Fall 2012 Homework Problem Set 30 (PS30)**

Be sure to show your work.

1. Text, Problem 12-28a.

Simplify your answer so that only positive powers of  $j\omega$  appear in the numerator and denominator of the frequency response equation.

Plot the magnitude and phase of the frequency response in MATLAB using a 2x1 subplot. Use a frequency vector that runs from  $\omega=-15,000$  rad/sec to  $\omega=15,000$  rad/sec.

What type of filter is this (LPF, HPF, BPF, etc)?

Based on your magnitude plot, what is the -3dB cutoff frequency for the filter in Hz?

2. Text, Problem 12-28d. Simplify your answer so that only positive powers of  $j\omega$  appear in the numerator and denominator of the frequency response equation.

Plot the magnitude and phase of the frequency response in MATLAB using *subplot* to put both plots in one figure window. Use a frequency vector that runs from  $\omega=-500$  rad/sec to  $\omega=500$  rad/sec.

What type of filter is this (LPF, HPF, BPF, etc)?

Based on your magnitude plot, what is the -3dB cutoff frequency for the filter in Hz?