

ECE 224b

Homework 4

Due: Wed, May 13, 2008

Reading: Chapters 7:

Problems: 7.23, 7.33, 7.34, 7.35

5. Consider the function: $f(x) = (4x^3 - 3x)/(1+x^6)$. In the problem below, normalize the magnitude of each FFT to have the same Range.

- over the range, $-4..4$, sample this function $N=16$ and plot the magnitude of the FFT.
- Interpolate the above sample by extending the FFT to $-64, 64$ by zero padding (same samples as above). Plot the new FFT.
- Compare with FFT of $f(x)$ sampled over $-64..64$, $N=256$
- Compare with FFT of $f(x)$ sampled over $-4..4$, $N=256$. How can you relate it to the above spectra?