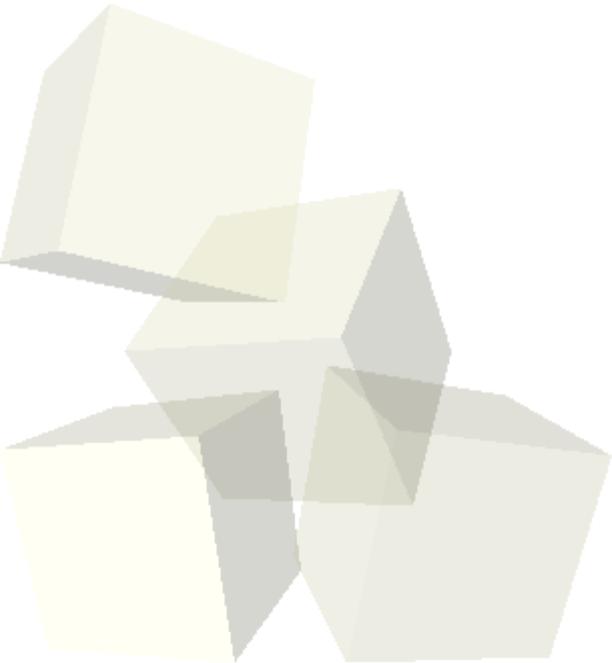
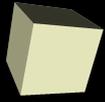




# Signal Processing with FFTs

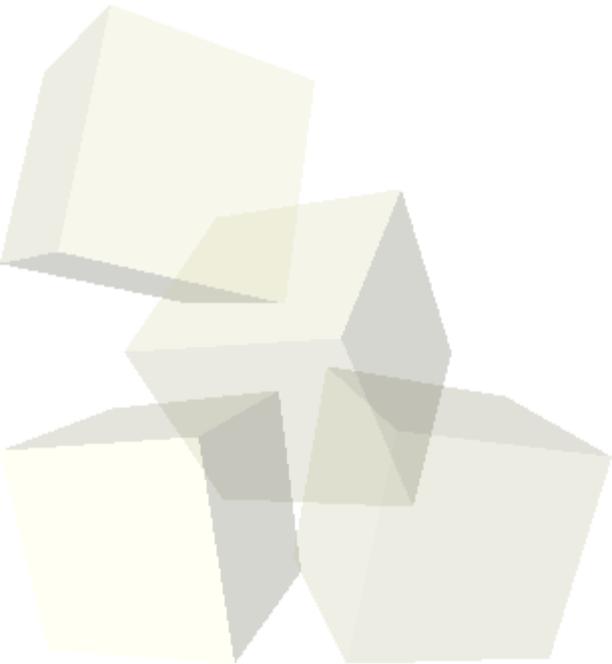
2/20/2008

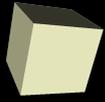




# Opening Discussion

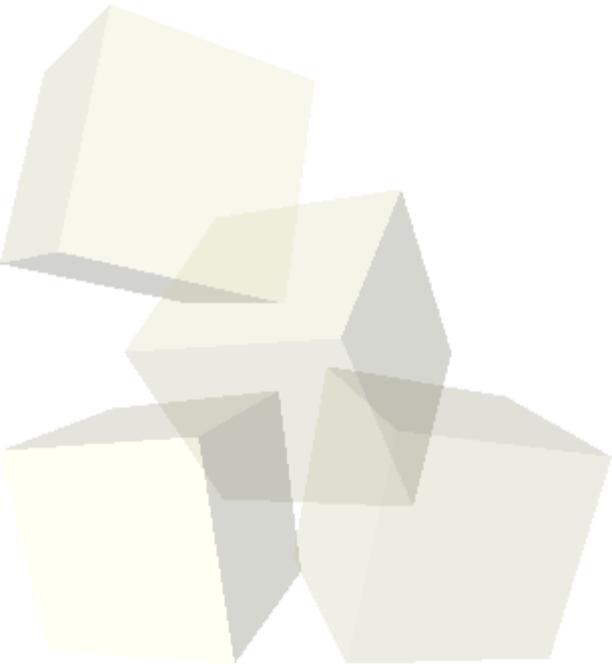
- What did we talk about last class?
- Do you have any questions about the readings?

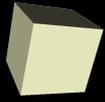




- Do you have any data that we could look at and do analysis on either with fitting or signal processing?

$$e^{ix} = \cos(x) + i \sin(x)$$



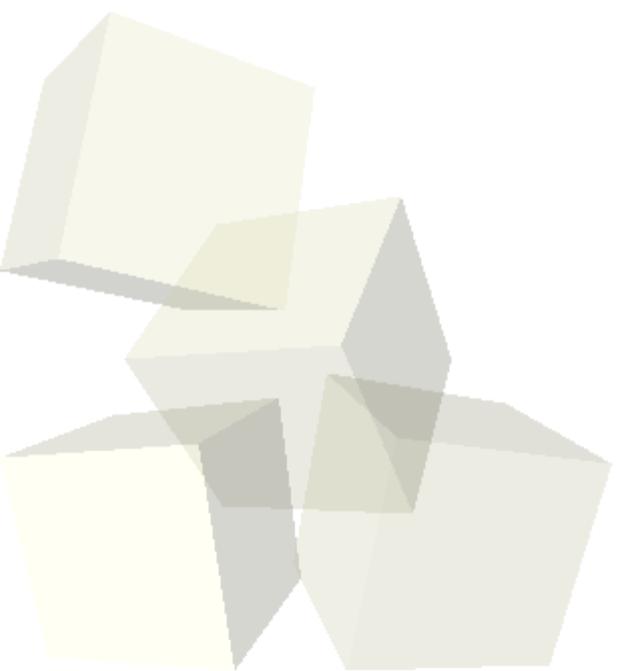


# Fast Fourier Transform

- Technically what Matlab uses is a function called a fast Fourier transform. To keep it fast, the number of elements passed into it needs to be a power of 2.
- The fft function will go from a signal series and return a series of the frequencies.
- The ifft function does the opposite.
- Notice that we don't pass in the time values so the indexes are assumed to be the times. We have to scale that back to whatever range we actually want.



- Let's spend the rest of the class working with the fft function and doing some examples.





# Closing Comments

- Assignment #4 is due on Friday.

