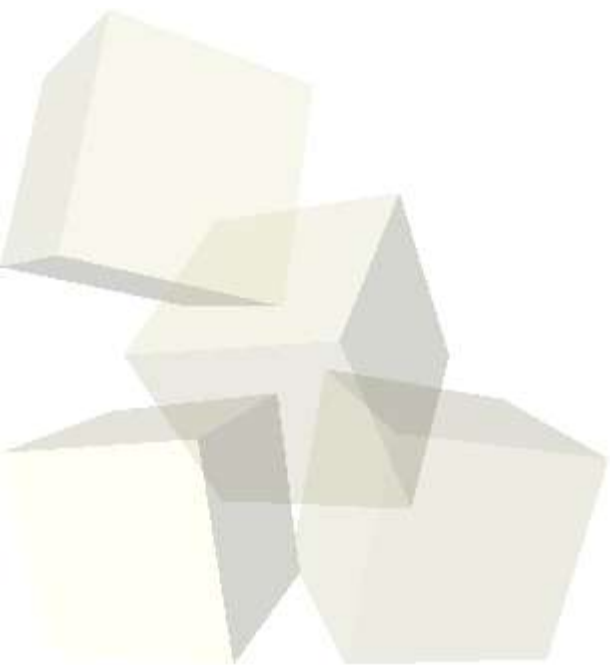




Integration and Differentiation

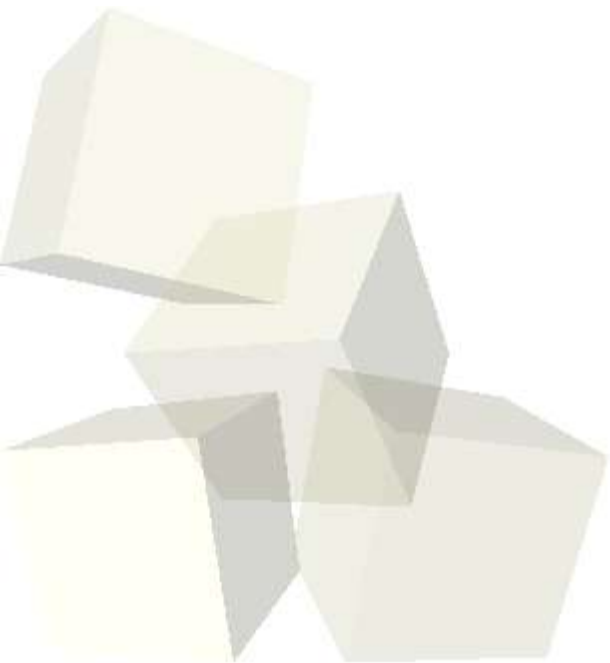
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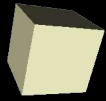




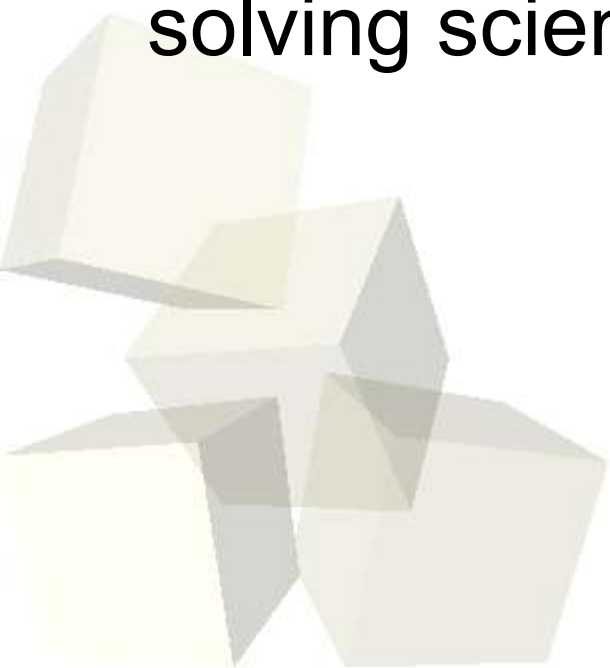
Opening Discussion

- Let's talk a bit more about fft since it is on your homework and I was brain dead last class.
- Do you have any questions about the assignment?





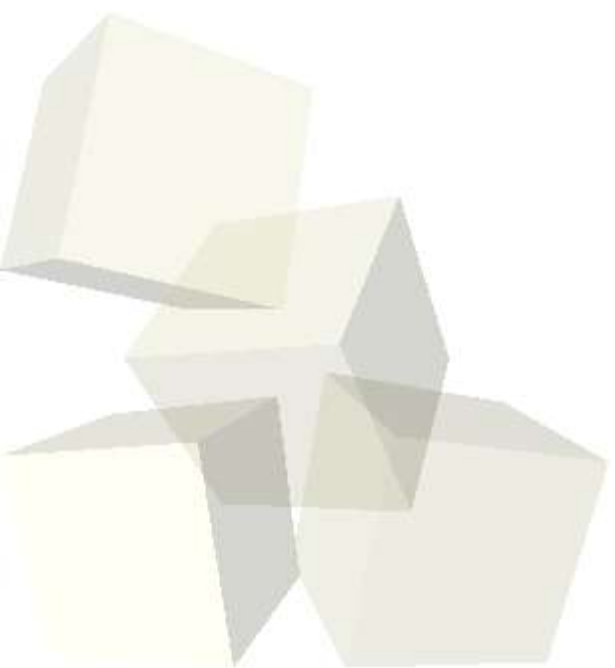
- What functions do we use for integrating in Matlab? What can you tell me about how these functions work?
- Let's write code that will integrate some fairly simple functions. Note the difference in what we have to pass to the different integration functions.
- Where would we want to use integration when solving science problems?





Integration in 2-D

- What do we use for doing integration in 2-dimensions?
- What is the meaning of 2-D integrations? Where is this useful in science?

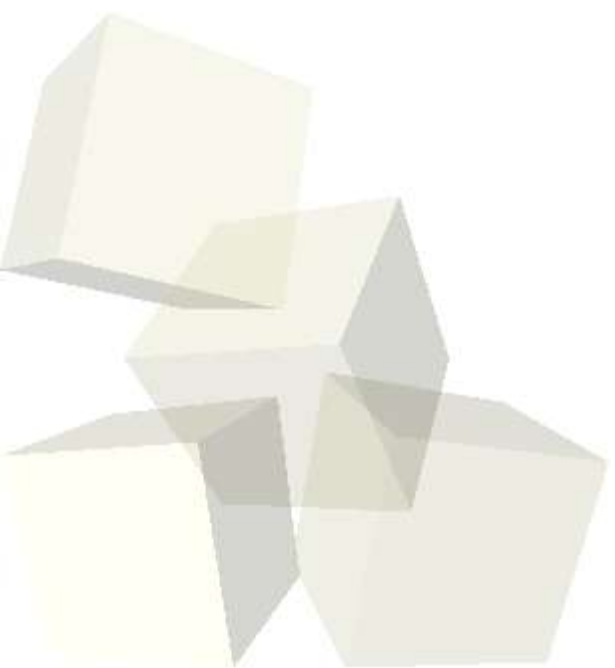




- Numeric differentiation is something that is generally frowned upon. The reason is simply that difference methods are not well behaved, especially when dealing with noisy data from an experiment. If you have that type of data you should do some type of fitting and take a derivative of the fit.
- What are we supposed to use to take numerical derivatives in Matlab?
- Why is a central difference so much more accurate than a forward or backward difference?



- Do you know what the meaning of a gradient is? Matlab has a built in function that will calculate a gradient for grid data.





- Your next reading is your last one from the Matlab book. Do try to practice doing things with Matlab so that you can be familiar with the syntax and how to solve problems. For people who are used to normal imperative programming (including me) it can be difficult to figure out how to express a number of different things using the “loops” and functions in Matlab.

