



More Differential Equations

2/27/2008





Opening Discussion

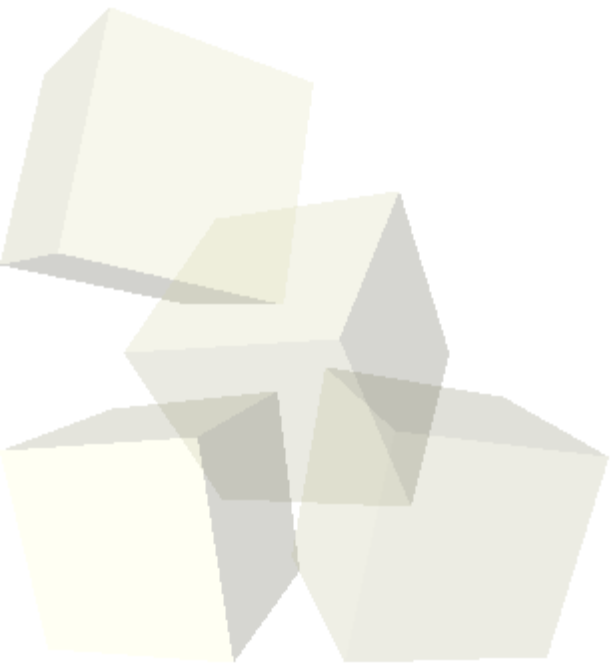
- Do you have any questions about the quiz?
- What did we talk about last class?
- Do you have any questions about the assignment?





Multibody Systems as ODEs

- So how do we represent a multibody system as an ODE? What are the variables that we need? What does the system of equations look like?
- The simplest system is probably gravity. Let's set up an N-body gravitational system and solve it with our Euler method and ode45.





- Population biology can also be expressed as differential equations. Consider things like predator-prey models where how quickly a population changes depends on how much food it has, how many there are now, and how many predators there are.
- Chemical reactions can also be nicely modeled with ODEs where reaction rates give you the change in abundance.
- If we go back to chaos examples the Lorenz attractor is a rather famous ODE. We could put that into code and see it as well.



Reminders

- Assignment #5 is due next Monday.

