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MTH 434

Homework 7A: Regular Surfaces

Questions:

After reading this section I had a couple of questions. The first, and least important, is: what is a great circle? I have not encountered this term before. Second, for a regular surface with a surface patch, how does one decide which variable corresponds to latitude and which to longitude (as in page 132)? I think the part about local coordinates was the most interesting and the fact that the number of local coordinates was related to the rank of the Jacobian.

Reflections:

This section was pretty heavy so it took me a while to work through. Reading the examples for the cone, cylinder, and sphere were helpful. After reading the bit about localized coordinates I wondered if this differential geometry could have applications to Hamiltonian/Lagrangian dynamics for constrained systems (we've used the idea of generalized coordinates frequently in Physics).

Time:

This section took about 40 minutes to work through.