Math 142  Topics for the Final Exam

- areas in polar coordinates
- differentiation
- how to draw and recognize graphs of familiar things
- models of integration
- fundamental theorem of calculus
- Riemann sums
- area between two curves
- volume, density, and average value calculations using calculus
- rotational volume/disk and shell methods
- work done by a variable force
- center of mass
- methods of integration - by parts, trig-sub, u-sub, partial fractions, etc.
- inverse trig functions
- improper integrals
- numerical integration - how many subdivisions required to get a given accuracy?
- position, velocity, and acceleration functions
- Taylor and Maclaurin polynomials
- limits ~ convergence and divergence
- sequences ~ including convergence and divergence
- series ~ including convergence and divergence
- recognizing geometric series and finding their sums
- decimal expansions - a kind of geometric series
- all the different tests for convergence and divergence
- power series
- interval of convergence for power series
- manipulating power series - for example expressing an integral as an infinite series