ENEE241/MATH242 Dr. Wolfe Review for Third Hour Exam Spring 2004

Sections Covered on the Exam: 7.1, 7.2, 7.3, 7.4, 7.5, 10.1, 10.2, 10.5.

Be able to:

1. Carry out a few steps of the bisection method by hand to approximate a root of $f(x) = 0$.
2. Carry out one or two steps of the secant method to approximate a root of $f(x)$.
3. Carry out Newton's method to full convergence on your calculator (i.e. stop when two successive iterates are identical).
4. Transform a root-finding problem to a fixed point problem.
5. Understand and apply the fundamental theorem on convergence of fixed point iterations.
6. Carry out one step of Newton's method for two equations in two unknowns.
7. Carry out one or two steps of Jacobi or Gauss-Siedel iterations for a linear system
8. Carry out one or two steps of Euler or Improved Euler for a scalar ODE.
9. Convert a higher order ODE or a system of higher order ODEs to a system of first order ODE's.