Math 4401

Numerical Analysis Test 1: Review Sheet

Topics:

Basic Solution Finding or Root Finding Methods:

Common things to know: a) What problem does it solve? b) How does it work? c) When does it work? d) How Fast does it work? e) When does it not work?

1. Bisection Method:
   1. http://en.wikipedia.org/wiki/Bisection\_method
2. Rates of Convergence:
   1. http://en.wikipedia.org/wiki/Rate\_of\_convergence
3. Newton’s Method
   1. http://en.wikipedia.org/wiki/Newton’s\_method
4. General Fixed Point Methods
   1. http://en.wikipedia.org/wiki/Fixed-point\_iteration

Interpolation Theory

1. Lagrange Polynomials
   1. http://en.wikipedia.org/wiki/Lagrange\_polynomial
2. The Lagrange Polynomial Error Formula
   1. http://en.wikipedia.org/wiki/Polynomial\_interpolation
3. Hermite Polynomial…. Limiting transition from Lagrange Polynomials
4. Local Interpolation Method

Least Squares

1. Using Gramm-Schmidt

2. Using the Normal Equations