

Quiz #5

Due in class, Friday, August 8, 2003

Nonlinear Equations & Optimization

Read all statements and questions carefully. Submit full, clear reasoning; this will help us give you partial credit. You may consult only the proctor. Closed book and closed notes. You will have as much of today's section as necessary.

1) (20%) Name the best property of Newton's method. Name its worst issue.

2) (80%)

a) Name the two best properties of the Golden Section Search.

b) Let F denote the set of all unimodal functions with unique minimums in their respective intervals of interest. Write down your own bracketing algorithm for finding the minimum of any $f \in F$. Apply a few iterations of your algorithm to the function $f(x) = |x|$. Make sure you don't leave details (like what happens when $f(c) = f(d)$, for instance) out of your algorithm.