CH.2- Roots of Equations

Homework

We want to solve the equation f(x)=0.

1. Write the iteration schemes of Heron's principle for the square root of *a*, Midpoint rule, Newton-Raphson algorithm.

2. For $f(x) = x^2 - a$, express the relative error at the future iteration in terms of the relative error at the present iteration for each of the 3 schemes.

3. Find the convergence order of each method, i.e., find $\boldsymbol{\sigma}$ such that $\delta_{n+1} = K\ {\delta_n}^{\sigma}$. Deduce the slowest scheme?