

## Preparation guide for Quiz 02

1. Go over all the homework problems and make sure you understand them clearly. You will need to do simple programming for the quiz, such as revising a (given) fixed point iteration, Newton, secant or method of false position code for a different  $f$ . Try with some sample codes first.
2. Know how to modify a fixed point iteration when the condition  $|g'| \leq k < 1$  is NOT satisfied. This is closely related to the error estimate for fixed point iteration.
3. Understand the meaning of 'order of convergence', such as linear convergence, super-linear convergence, quadratic convergence, etc. Be able to give examples of linearly, superlinearly and quadratically convergent sequences, etc.
4. Be able to derive the formulae for Newton's method, secant method, etc.
5. Be able to derive error estimate for Newton's method on simple roots. Understand why Newton's method becomes linearly convergent at multiple roots.