

On Thursday 7/3, we will summarize methods for solving systems of linear equations. We will then start on root finding (solving non linear equations). We start with one equation in one variable and discuss the concept of bracketing the solution and then bisection (see 9.1). Then we go through the Newton's method (section 9.4) and then the methods Secant, False position (Regula falsi) and Ridder (sec. 9.2). For each method, we discuss three topics: Rate of convergence, error estimates/stop criterion, robustness.

You will then work on the simple problem $x - \cos(x) = 0$ and be asked to find the solution X between zero and $\pi/2$ with each of the presented methods. Each method produces a sequence x_0, x_1, x_2, \dots that is supposed to converge to the solution.

You will be asked to organize outputs of the method in a table where each line corresponds to one iteration. The table will contain the following info $x_i, x_{i-1}, (x_i - x_{i-1}) / (x_{i-1} - x_{i-2})^k, e_i$ where k is the so-called convergence order of the method and e_i is the estimate of the error $x_i - X$.

Finally, Ole has handed out a mandatory exercise for which you will have one week. The purpose of the mandatory exercises is to make sure that you have understood and can use the relevant material. Deadline is Thursday, March 7 at 12.00. The deadline is STRICT !! You are supposed to work in groups of two persons.
