SE Course: Numerical Methods

http://www.cs.aaue.dk/~yang/course/NMbasis/NM2010.htm
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MM6: Secant Iteration Method

1 kl.8:15-9:00, Review of MM4 and Some Examples

- What we talked in MM5;
- Examples of Secant and Newton's methods;
- Matlab implementations.

2 kl.9:10-10:40, Exercises for MM5

Question One:

Consider the same equation as we used in MM3 and MM4 Exercise One, i.e.,

$$3x^3 - 5x^2 - 4x + 4 = 0 \tag{1}$$

- Create your m-file to obtain the solution of the above equation located within the interval $[0, 1]$, using secant method with tolerance 10^{-6};
- How many iterations would be needed to obtain this solution? Compare the result with that of Newton's method in Exercise MM4.

Question Two:

Consider the following two equations

$$\begin{aligned} &4x^2 + y^2 = 4 \\ &x^2 y^3 = 1, \end{aligned} \tag{2}$$

- Find the coordinates of the intersections in the second quadrant of curves described by above equations using 2 unknown parameters Newton's Method.

3 kl.10:50-11:30, Introduction to Interpolation Method

- Reading material: Subsection 4.1, 4.2 in Textbook.