

Numerical Methods

Homework 9

Due: Wednesday, June 12th, 11:00am
or per email on Tuesday to **cpopov59@gmail.com**

1. Square root

The function $f(x) = \sqrt{x}$ has to be approximated by polynomial interpolation $p(x_i) = f(x_i)$ with the positions $\{x_i\} = \{0, 1, 4, 9\}$. Which method is suited best (i.e., which method is the fastest) if one is only interested in $p(2)$? Calculate $p(2)$ using this method.

2. Square root II

Approximate $f(x) = \sqrt{x}$ by interpolation with a Hermite polynomial using the method of divided differences and the positions $x_i \in \{1, 4\}$.