# Preparation guide for Quiz 03

The exam problems will be closely related to your homework problems. Make sure you understand all of them.

1. Section 3.1: Learn how to construct Lagrange interpolating polynomials and practice on implementing it. Direct evaluation will do, but Neville's method is encouraged (extra credit).

2. Section 3.1: Study the error formula (identity) for Lagrange interpolation and how to obtain an error bound (inequality).

3. Section 3.2: Study how to obtain $P_{0,1,\cdots,k}$ from $P_{0,1,\cdots,j-1,j+1,\cdots,k}$ and $P_{0,1,\cdots,i-1,i+1,\cdots,k}$.

4. Section 3.2: Study how to solve nonlinear equations with Inverse Interpolation.

5. Section 3.5: Study the meaning of cubic spline and how to match the coefficients at $x_j$ (such as problems 12, 13, 14). Memorize the meaning of natural and clamped boundary conditions.

6. Section 3.5: Study how to obtain the degree of the piecewise polynomial and number of boundary condition needed for a $C^k$ spline.