

Answer the following question with „yes“ or „no“ and provide one explaining sentence!

Exercise 1 (Polynomial Interpolation)

Given $(x_1, y_1), \dots, (x_6, y_6)$.

Is the maximal degree of the uniquely determined interpolation polynomial equal to 6?

Exercise 2 (Barycentric Interpolation)

Is the the first barycentric interpolation ill-conditioned for a large number of nodes?

Exercise 3 (Chebyshev Nodes)

Are the Chebyshev nodes equally spaced in $[-1, 1]$?

Exercise 4 (FFT)

Does the FFT rely on writing the Fourier matrix $(\omega_n^{-jk})_{j,k} \in \mathbb{C}^{n \times n}$ as a special sum of matrices?