Numerical analysis Experiment Report

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1 Introduction

Construct Newton's interpolation polynomial for function

$$f(x) = \frac{1}{1+25x^2}, x \in [-1, 1]$$

The interpolation node is taken as

$$1.x_i = 1 - \frac{2}{N}i$$

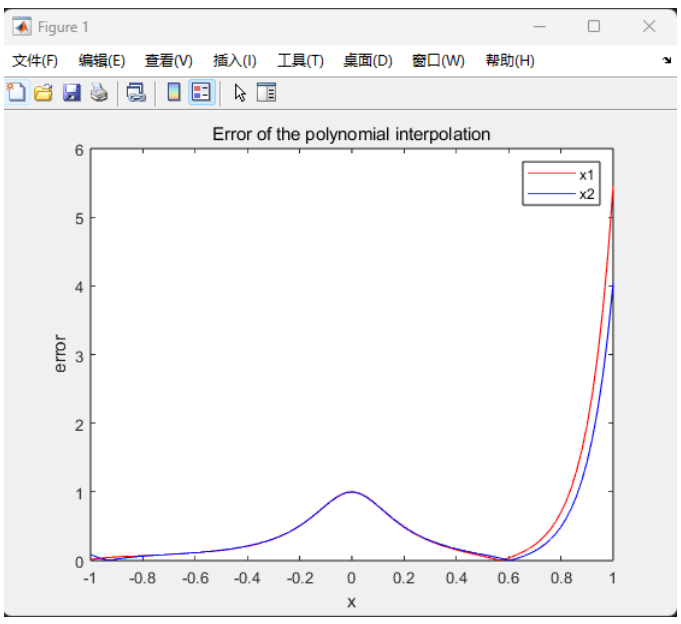
$$2.x_i = -cos\left(\frac{2i+1}{2N+2}\pi\right)$$

Then calculate the errors with $N = 5, 10, 20, 40$

2 Method

Calculate the difference quotient to obtain Newton's interpolation polynomial.

3 Results



4 Discussion

A Computer Code

See attached files