

Introduction to Week Six

Numerical Solutions of PDEs

Direct Solution of Boundary Value Problems

- ✓

Video: Discrete Laplace Equation | Lecture 62
9 min
- ✓

Reading: Mean Value Property of the Laplace Equation
10 min
- ✓

Video: Natural Ordering | Lecture 63
8 min
- ✓

Reading: Coordinates of the four corners
5 min
- ✓

Video: Matrix Formulation | Lecture 64
12 min
- ✓

Reading: The Discrete Laplace Equation on a Four-by-Four Grid
10 min
- ✓

Reading: Number of Interior and Boundary Points
10 min
- ▶

Video: MATLAB Solution of the Laplace Equation (Direct Method) | Lecture 65
17 min
- 🔗

Ungraded External Tool: Direct Solution of the Laplace Equation
30 min

Iterative Solution of Boundary Value Problems

Time-stepping Methods for Initial Value Problems

Quiz

Programming Assignment: Two-dimensional Diffusion Equation

Farewell

Number of Interior and Boundary Points

On a rectangular grid with n_x and n_y grid points, how many interior points are there and how many boundary points? What percentage of grid points are boundary points when $n_x = n_y = 100$, and what percentage when $n_x = n_y = 1000$?

✓ Completed

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