THE GAUSS-SEIDEL ITERATION AND SIX ORDER FINITE DIFFERENCE METHOD FOR SOLVING LAPLACE'S EQUATION

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Abstract

A six order finite difference-analytical method to solve the Laplace's equation will be introduced. The uniform estimate for the error of the approximate solution is of order $O(h^6)$, where h is the mesh step. The Gauss Siedel method will be introduced to solve the system derived from our approximation and numerical example are given in to support the theoretical results.

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