

A Non-Standard Finite Difference Scheme for the Solution of Laplace Equation with Dirichlet Boundary Conditions

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Abstract : In this paper, we present a fast and accurate numerical scheme for the solution of a Laplace equation with Dirichlet boundary conditions. The non-standard finite difference scheme (NSFD) is applied to construct the numerical solutions of a Laplace equation with two different Dirichlet boundary conditions. The solutions obtained using NSFD are compared with the solutions obtained using the standard finite difference scheme (SFD). The NSFD scheme is demonstrated to be reliable and efficient.

Keywords : standard finite difference schemes, non-standard schemes, Laplace equation, Dirichlet boundary conditions

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