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FOURTH ORDER FINITE DIFFERNCE METHOD FOR SINGULARLY PERTURBED TWO-POINT SINGULAR BOUNDARY VALUE PROBLEMS

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Abstract

In this paper, a fourth order finite difference method is developed on a uniform mesh for a class of singularly perturbed two-point singular boundary value problems. At the singularity the boundary value problem is modified, a solution nearer to singularity is obtained. Using this solution the tridiagonal scheme obtained from the method is solved efficiently. Root mean square errors in numerical results are presented to illustrate the proposed method.

Key Words : *Singular perturbation, Singularity, Boundary layer, Tridiagonal system, Finite differences.*