

NUMERICAL SOLUTION OF STIFF SYSTEM BY TRAPEZOIDAL METHOD

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Abstract

In this paper, a piecewise uniform mesh is constructed and used, in conjunction with Trapezoidal method to form a new numerical method for solving a coupled first order stiff system of Ordinary Differential Equations(ODEs) with prescribed initial conditions. It is proved that the numerical approximations generated by this method with piecewise uniform mesh produce numerical solutions with less computational effort and less error as compared to the method with uniform mesh. Numerical results are presented to validate this.

Key Words : *System of stiff differential equations, Initial value problem, Trapezoidal method, Piecewise uniform mesh.*

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