

Computational solution of first order linear fredholm integro-differential equations by quarter sweep successive over relaxation method

Abstract

In this paper the effectiveness of the Quarter-Sweep Successive Over Relaxation (QSSOR) iterative method has been examined corresponding to finite difference-composite trapezoidal discretization schemes in solving first order linear Fredholm integro-differential equations. The mathematical formulations of the standard or Full-Sweep Successive Over Relaxation (FSSOR) methods also presented. Analysis of computational complexities and calculation of percentages reduction in number of iterations and execution time are also given to demonstrate that the QSSOR is superior compared to the standard Successive Over Relaxation method. Several numerical experiments have been shown to support the statements.