APPROXIMATE SOLUTION OF FREDHOLM INTEGRAL EQUATION OF THE SECOND KIND USING A COMBINE METHOD

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Abstract

A combine method is given for the approximate solution of Fredholm integral equations of the second kind. The proposed method based on the iteration techniques, while the kernel and the given known functions of the integral equation are approximated by Maclaurin polynomials of degree n with error estimations. The convergence of the solution is studied and the conditions for the convergent solution is given. An algorithm of the obtained solution is established via matrices. Thus reducing the required solution so that only one coefficient matrix is required to be computed. Therefore, computational complexity can be considerably reduced and much computational time can be saved. The new proposed approach needs a small number of iterations to provide an exact result, that proofs the power of the presented combine method

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