

Numerical solution of fuzzy fredholm integral equations of second kind using half-sweep gauss-seidel iteration

Abstract

The purpose of this study is to apply the Half-Sweep Gauss-Seidel (HSGS) iteration to find the approximate solution of fuzzy Fredholm integral equations of the second kind (FFIE-2). The approximation equation of FFIE-2 is derived by using trapezoidal quadrature scheme to generate Half-Sweep system of fuzzy linear equations. Then, the generated linear system of FFIE-2 is solved using HSGS. After that, some numerical examples are conducted to test the efficiency of the HSGS compared with Full-Sweep Jacobi (FSJ) and Full-Sweep Gauss-Seidel (FSGS) iterative methods. The comparative analysis is done by using three measuring parameters: number of iterations, iteration time, and Hausdorff distance. Based on the findings, it can be pointed out that HSGS method is more efficient than the FSJ and FSGS iterative methods.