Numerical solution of SOR iterative method for fuzzy Fredholm integral equations of second kind

ABSTRACT

In this paper, we deal with the application of Successive Over-Relaxation (SOR) iterative method for solving fuzzy Fredholm integral equations of the second kind (FFIE-2). In addition to that, we apply the trapezoidal rule to derive the approximate solution of FFIE-2 which consists of a system of integral equations. Next, the approximate equation is used to develop a system of linear equations. Then, we consider SOR iterative method to solve the generated system of linear equations. Next, SOR iterative method is implemented on some numerical examples. Finally, the numerical results is discussed in details by comparing the number of iterations, the computational time, and the Hausdorff distance to analyze the performance of proposed method. Based on the numerical results obtained from all the numerical examples by using Gauss-Seidel (GS) and SOR methods, it can be pointed out that SOR method is more efficient than the GS method.