Implicit solution of gs iteration with semi approximate approach for solving burgers' equation

ABSTRACT

The aim of this study is to find semi-approximate solution of nonlinear Burgers' equation based on the semi-approximate approach. To derive the approximation equation, the discretization of second-order implicit scheme has been used to discretize the proposed problem. To eliminate the nonlinear term of the proposed problems, semi-approximate approach is used to form a linear system which can be solved iteratively. Furthemore, numerical results of three proposed examples are included to examine the performance of Gauss-Seidel (GS) iteration compared to Jacobi iteration. The implementation of iteration with semi-approximate approach shown that GS iteration is more efficient than Jacobi iteration in aspect of iteration numbers and execution time.