

Semi-approximate solution for burgers' equation using SOR iteration

ABSTRACT

In this article, we propose a semi-approximate approach in finding a solution of Burgers' equation, which is one of the partial differential equations (PDEs). Without using the Newton method for linearization, we derive the approximation equation of the proposed problem by using a second-order implicit scheme together with the semi-approximate approach. Then this approximation equation leads to a huge scale and sparse linear system. Having this linear system, the Successive Overrelaxation (SOR) iteration will be performed as a linear solver. The formulation and execution of SOR iteration are included in this paper. This paper proposed four examples of Burgers' equations to determine the performance of the suggested method. The test results discovered that the SOR iteration is more effective than GS iteration with less time of execution and minimum iteration numbers.