

A new octo-sweep iterative method for solving two-dimensional elliptic equations.

ABSTRACT

The main aim of this paper is to examine a new point iterative method known as octo-sweep iterative method in solving two-dimensional elliptic partial differential equations. The method is shown to be very much faster as compared to the quarter-, half- and full-sweep iterative methods. In addition, formulation and implementation of the proposed method to solve the problems are also presented. Numerical test and comparison with other existing methods are given to illustrate the effectiveness of the proposed method.

Keyword: Elliptic equations; Full-; Half-; Quarter- and Octo-Sweeps iterations; Finite difference method; Gauss-Seidel (GS) method.