

Generalized Jacobi and Gauss-Seidel method for solving non-square linear systems

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Abstract

In [1], authors considered non-square linear system with number of variables is more than that of equations and described a new iterative procedure along with a convergence analysis. Jacobi and Gauss-Seidel methods are most stationary iterative methods for finding an approximate solution to square linear systems. Using similar technique as in [1], Jacobi and Gauss-Seidel procedures for solving non-square linear system with number of variables is more than that of equations, are generalized. More specifically, Jacobi or Gauss-Seidel iterative methods are applied for the square part of the system and the iterative method described in [1] is applied for the non-square part of the system to obtain an approximate solution of the system. We also derive sufficient conditions for the convergence of such procedure. Finally, a procedure to obtain an exact solution of the system is provided. Numerical illustration has been given for the same, and to compare the procedure with the procedure available in [1].

Keywords

Iterative method, Jacobi, Gauss-Seidel, convergence.

References

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