An Efficient Higher Order Numerical Scheme for Solving Systems of Nonlinear Equations and Applications

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Abstract

In this paper, we propose a three-step efficient family of seventh order iterative methods to solve nonlinear equations. We examine six real life problems of scalar equations from two different fields i.e., telecommunication and electrical engineering. The new scheme is extendable to multidimensional case and need only one Jacobian evaluation at each iteration. For multidimensional cases, we give its applicability to determine orbits of celestial bodies. The Gaussian method for calculating preliminary orbits has been improved to make advantage of the new and effective iterative schemes to attain greater accuracy.

References

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