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An Iterative Family for Solution of System of Nonlinear Equations

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Abstract : This paper presents a family of iterative scheme for solving nonlinear systems of equations which have wide application in sciences and engineering. The proposed iterative family is based upon some parameters which generates many different iterative schemes. This family is completely derivative free and uses first of divided difference operator. Moreover some numerical experiments are performed and compared with existing methods. Analysis of convergence shows that the presented family has fourth-order of convergence. The dynamical behaviour of proposed family and local convergence have also been discussed. The numerical performance and convergence region comparison demonstrates that proposed family is efficient.

Keywords : convergence, divided difference operator, nonlinear system, Newton's method
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