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New iterative methods for solving nonlinear equation by using homotopy perturbation method. (English) [Zbl 1311.65050]

Summary: In this paper, we suggest and analyze a new class of iterative methods for solving nonlinear equations by using the homotopy perturbation method. Convergence of their method is also considered. Here we also discuss the efficiency index and computational order of convergence of new methods. Several numerical examples are given to illustrate the efficiency and performance of these new methods. These new iterative methods may be viewed as an extension and generalization of the existing methods for solving nonlinear equations.

MSC: 65H05 Numerical computation of solutions to single equations

Keywords: nonlinear equations; series solution; modified homotopy perturbation method; convergence criteria; numerical examples

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References:

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