عنوان مقاله:

Novel Optimal Class of Eighth-Order Methods for Solving Nonlinear Equations and Their Dynamical Aspects

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خلاصه مقاله:

In this paper, a novel optimal class of eighth-order convergence methods for finding simple roots of nonlinear equations is derived based on the Predictor-Corrector of Halley method. By combining weight functions and derivative approximations, an optimal class of iterative methods with eighth-order convergence is constructed. In terms of computational cost, the proposed methods require three function evaluations, and the first derivative is evaluated once per iteration. Moreover, the methods have efficiency indices equal to ۱.۶۸۱۷. The proposed methods have been tested with several numerical .examples, as well as a comparison with existing methods for analyzing efficacy is presented

کلمات کلیدی:

Halley's method, Non-linear equations, Iterative methods, Convergence analysis, Polynomiography