An Optimal Thirty-Second-Order Iterative Method for Solving Nonlinear Equations and a Conjecture [

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Analítica

Many multipoint iterative methods without memory for solving non-linear equations in one variable are found in the literature. In particular, there are methods that provide fourth-order, eighth-order or sixteenth-order convergence using only, respectively, three, four or five function evaluations per iteration step, thus supporting the Kung-Traub conjecture on the optimal order of convergence. This paper shows how to find optimal high order root-finding iterative methods by means of a general scheme based in weight functions. In particular, we explicitly give an optimal thirty-second-order iterative method; as long as we know, an iterative method with that order of convergence has not been described before. Finally, we give a conjecture about optimal order multipoint iterative methods with weights

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