

1125-VC-678

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*Convergence of Iterative Methods under Weak Conditions.*

The convergence order of iterative methods defined on the real line is usually determined using higher derivatives and Taylor expansions although these derivatives do not appear in the methods. In the present study, we show convergence of some popular iterative methods using only hypotheses on the first derivative. This way we expand the applicability of these methods. We use the computational order of convergence of the method. Numerical examples are also presented to show that our results can be used to solve equations in cases that the results in earlier studies cannot be used. (Received September 09, 2016)