

**COMPARISON OF SECANT, MODIFIED SECANT AND
MODIFIED NEWTON-SECANT ITERATIVE METHODS OF
SOLVING NONLINEAR EQUATIONS**

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ABSTRACT

The secant method, the modified secant method, and the modified Newton-secant method are three common iterative methods for solving nonlinear equations that are compared in this article. A commonly used technique for locating roots is the secant method, however it suffers from delayed convergence close to the answer. The modified secant method introduces a slight perturbation in the secant formula to improve convergence properties in order to get over this restriction. The modified Newton-secant method, on the other hand, uses a secant-based strategy together with derivative data to combine the benefits of both the secant and Newton methods. The objective of this research is to evaluate and compare how well various methods perform in terms of number of iterations, value of roots, error and Central Processing Units (CPU) Time. Overall, this comparative analysis adds to the body of knowledge on numerical methods for nonlinear equations and helps researchers and practitioners choose and use the right iterative method by providing them with the information they need. This research conclude that Modified Secant method is the efficient method among those three methods.

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