Review of: "Unified Inversion Method for Solving Polynomial Equations: A Reverse Detour to the Common Procedure"

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Potential competing interests: No potential competing interests to declare.

Evaluation: MAJOR REVISION

Dear Editor, please send the research for evaluation again after modifications are corrected by the author

Comments

The paper presents an innovative approach that is both intuitive and efficient. With additional mathematical detail, comparisons, and examples, it has the potential to significantly contribute to the field of algebraic equation solving. The abstract provides a succinct overview of the historical context, recent advancements, and the proposed unified inversion method for solving polynomial equations. It emphasizes the novelty of the method in inverting the nth roots of variables, offering a reverse approach compared to traditional techniques like Cardano's method. The introduction provides a comprehensive historical review, contextualizing the development of polynomial solutions from ancient times to modern approaches. It discusses milestones such as Cardano's, Viete's, and Lagrange's contributions, setting the stage for the proposed method. The proposed method is grounded in the idea of inverting the nth roots of variables, which provides an alternative to traditional approaches like Cardano's. This reverse approach ensures real roots remain real and simplifies the algebraic process. The conclusion succinctly summarizes the contributions and emphasizes the simplicity, intuition, and practicality of the proposed inversion method.

Strengths:

1. **Historical Depth:** Thorough review of historical and modern methods for solving polynomial equations.
2. **Novelty:** Introduction of a unique inversion method with practical advantages.
3. **Clarity:** Logical progression from historical context to the proposed method.

Weaknesses:

1. **Lack of Detail:** Insufficient mathematical rigor in explaining the proposed method.
2. **Limited Comparisons:** Few quantitative or qualitative comparisons with existing methods.
3. **Examples:** Lack of detailed examples to fully demonstrate the method's advantages.