Review of: "From Complex to Real Numbers: A Reverse Detour for Solving Polynomial Equations Using Complex Numbers"

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Potential competing interests: No potential competing interests to declare.

Review Report

"From Complex to Real Numbers: A Reverse Detour for Solving Polynomial Equations Using Complex Numbers"

The paper clearly outlines its objective to explore the use of complex numbers for solving polynomial equations and then transition from complex to real numbers. The goal is well-defined, and the relevance of this approach to improving understanding of polynomial solutions is effectively communicated.

The methodology employed is rigorous and appropriate for the problem at hand. The authors present solid mathematical arguments, with detailed proofs and accurate computations. All necessary definitions, theorems, and lemmas are provided with appropriate references, making the theoretical foundation strong and credible.

The paper is well-structured, with a logical flow from introduction to conclusion. The sections are clearly defined, with each contributing to the overall argument. The introduction provides sufficient background and context, while the conclusion draws consistent results based on the analyses presented. The transitions between sections are smooth, enhancing the readability of the paper.

The writing is clear, concise, and accessible to readers with a background in mathematics. Technical terms and symbols are used correctly and consistently. The paper's notation and mathematical language are standard and appropriate, ensuring that the content is both understandable and professionally presented.

I think this paper offers a novel approach by emphasizing the reverse transition from complex to real numbers in solving polynomial equations. This perspective is innovative and provides valuable insights into the application of complex numbers. The connections made between complex and real solutions are effectively demonstrated, making the paper a significant contribution to the field of mathematics.

The references are relevant, up-to-date, and properly cited. The paper acknowledges prior work in the field and positions itself well within the existing literature. The citations are used effectively to support the arguments and enhance the credibility of the research.

Conclusion:

Overall, this paper is a well-executed and valuable contribution to the study of polynomial equations using complex numbers. It is mathematically rigorous, well-organized, and offers a fresh perspective on a classical problem. I recommend it for publication, with minor enhancements, such as the inclusion of additional practical examples or further elaboration on certain mathematical details. The paper only needs to be revised in English.