

Review of: "New Perspectives on the Roots of Real Polynomials of Degree n and Number Theory"

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Review report

In this work, the authors obtained some results on the real and complex roots of real polynomials of the form $P(x) = x^n + a_{n-1}x^{n-1} + \dots + a_1x + a_0$. The authors also obtained results on linear Diophantine equations of the form $ax + by = c$, where a , b , c , and d are integers. For the polynomials, optimal domains were obtained where the real or complex roots are found, without the use of higher calculus. Several examples of the results obtained are illustrated, which are intended to show the benefits of this proposal. Furthermore, using the same technique used to solve the previous problems, they propose an alternative method to address Fermat's Last Theorem.

I appreciated the method proposed in this study, also because the authors have used some original interesting ideas in order to optimize the obtained results. I find that the obtained results are very interesting, as can be seen by detailed perspectives. The methods used in this paper are clearly described. The results, all reasonable and expected, are introduced and proceed by an appropriate and concise discussion in the section. If possible, I would like only to recommend the authors to consider the following comments and suggestions:

1. Throughout the paper, grammatical errors and typographical errors, if any, should be minutely checked and corrected.
2. The authors should take care throughout the paper that each equation should end with either a comma (,) or a full stop (.) accordingly.
3. The motivation of the paper should be presented in detail.
4. The authors mention in the paper, "These types of equations are crucial due to their various applications in number theory, algorithms and computing, as well as in geometry and topology."

Please include some of these applications in the paper.

This paper may be strongly recommended to be published after making all the corrections and suggestions mentioned above.

