COMPARATIVE STUDY OF BISECTION, NEWTON AND HORNER'S METHOD FOR SOLVING NONLINEAR EQUATION

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DECLARATION BY CANDIDATE

We ascertain that the project and this report which it refers that is on our production and every concept and reference from the work of other people that are advertised are fully unquestioned correspond with the guideline implying practices of the discipline

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ABSTRACT

Mathematically every information or statistics could be transformed into a specific function by using mathematical modelling techniques. This function could be used later to find root(s), maximum point or minimum point and even to find the discontinuity point. A few numerical methods have been introduced in order to help mathematician to solve these functions for finding root(s) for example Bisection, Newton method and Horner's method. These methods are chosen because they apply simple algorithm that could be understood.

This research analysed and compared the efficiency of these methods to solve nonlinear function such as trigonometric, exponential, logarithmic and cubic polynomial function.

Although the methods are considered as alternative, the methods also possess error compared to the exact value. So, error analysis conducted. The efficiency is measured by the error produced at the fixed iteration. The methods are converted into C language and executed by using Maple 18. Furthermore, the three method are measured with respect to certain tolerance.

Keyword Bisection; Newton; Horner's; trigonometric; exponential; logarithmic; cubic polynomial; number of iterations; error; tolerance.

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