A MODIFIED FOUR SECTIONS METHOD FOR SOLVING NONLINEAR EQUATION

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DECLARATION BY CANDIDATE

We certify that this report and the project to which it refers is the product of our own work that any idea or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

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ABSTRACT

The multi sections method is a family of an upgraded version of bisection method. In this project, four sections method will be studied and improved. The difference between these two methods is the number of intervals itself. For the bisection method, the interval is divided into two equal intervals. Meanwhile, the interval in four sections method is divided into four equal sections. The root is then identified either in the first, second, third or fourth interval by determining the sign of the product of the function at both interval ends. The iterative sequence is continued until a desired stop criterion has been reached. In this research, a modification of four sections method is introduced. These methods are tested for several selected functions by using Maple software. The results are then analysed to determine the accuracy and efficiency of this new method based on the number of iterations and the CPU times. Based on the results, it is shown that when the interval increases, the CPU times will increase, however the number of iterations is reduced significantly.

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