SOLVING FIRST ORDER ORDINARY DIFFERENTIAL EQUATION USING EXPLICIT MULTISTEP ADAMS-BASHFORTH METHOD

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Thesis Submitted in Fulfilment of the Requirement for Bachelor of Science (Hons.) Computational Mathematics in The Faculty of Computer and Mathematical Science University Teknologi MARA

2019

DECLARATION BY CANDIDATES

We certify that this report and the project to which it refers is the product of our own work and 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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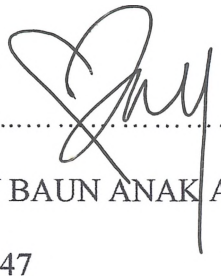

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ABSTRACT

Most problems in engineering and science field involved finding the solution of an ordinary differential equations. This solution can be obtained exactly by theoretical method or approximately using numerical method. Theoretical method is known to be complicated and required laborious amount of work. Adams-Bashforth method is a numerical method to approximate the solution of differential equation. This method is also known as a multistep method that requires the use of other numerical methods at the first few steps depending on its step. In this research, Adams-Bashforth method in the form of Two-Step, Three-Step, Four-Step, and Five-Step together with Fourth Order Runge-Kutta method are used to estimate the solution of first-order ordinary differential equations. The aim of this research is to compare the efficiency between different version of Adams-Bashforth multistep method in terms of central processing unit (CPU) time and error analysis.

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