

**PERFORMANCE COMPARISON OF NUMERICAL
INTEGRATION METHODS FOR SOLVING COMPLICATED
INTEGRATION PROBLEMS**

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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 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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ABSTRACT

Solving integration problems is very important as it is commonly appeared in wide range of fields and profession such as physics, mathematics and engineering. There are four known theoretical methods used to solve integration problems which are integration by substitution, integration by trigonometric substitution, integration by partial fraction and integration by part. However, these theoretical methods are quite complicated and leads to long and laborious calculation. Therefore, researchers tend to use numerical method which is quite simple and easy. In this project, seven numerical methods that are Trapezoidal Rule, Simpson's $1/3$ Rule, Simpson's $3/8$ Rule, Boole's Rule, Weddle's Rule, Durand's Rule and Hardy's Rule are chosen to solve complicated integration problems. The error is analyzed using percentage error of both exact and approximate value. The main purpose of this study is to determine the best numerical methods for solving integration problems.

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