

**PERFORMANCE COMPARISON OF NUMERICAL METHOD  
FOR FINDING THE APPROXIMATION OF DOUBLE  
INTEGRAL**

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## ABSTRACT

This is a comprehensive study to solve double integration problems. This is very important as it commonly appeared in wide range of fields and profession such as physics, mathematics and engineering. Double integration can be solving manually. But it is sometimes can be very long to solve. Therefore, researchers tend to use numerical methods which are quite simple and easy. In this project, four numerical methods were used to solve the complicated problems. The first method is Trapezoidal Rule. Next is Simpson's  $1/3$  Rule, Simpson's  $3/8$  Rule and Weddle's Rule. This project will use the methods for both layer of the integration since the double integration is consisting of 2 exist which are  $x$  – exist and  $y$  – exist of integration to solve the integration problem. The technique may be iterated to solve the problem (Candy, J, 1985). As the result, the error is analyses using percentage error of both exact and approximate value. The main purpose of this study is to determine the best numerical methods for solving double integration problems.

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