# UNIVERSITI TEKNOLOGI MARA

# TECHNICAL REPORT

## A STUDY OF HEAT EQUATION USING SEPARABLE VARIABLE METHOD.

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## ABSTRACT

During the last few decades, several interesting studies have been performed to investigate the applications of the partial differential equations (PDEs). Heat equation is one of the most famous partial differential equations. It has great importance not only in physics but also in many other fields. To introduce PDEs, specifically to study on the heat equation, this study is going to solve a simple problem which a function of space and time with different initial and boundary conditions. In this study, the objectives are to solve the heat equation using separable variable method with different boundary condition, to verify the solution of heat equation model with respect to time, and to compare the results based on previous study (Morales et al., 2021). To solve the heat equation, partial differential equation which is non-homogeneous model was used. The method of solving is using separable variable method. All the data will be substitute in the partial differential equation to get the temperature equation. Moreover, to verify the solution of the heat equation model with respect to time, Maple Software was used as aid. The result and discussion of current study and previous study has been compared. As the result of the comparison, both study shows the decreasing and increasing graph for both problem due to inconsistent temperature. This study provides useful information for future research studies into diverse heat transmission.