THREE DIMENSIONAL HOMOGENOUS WAVE EQUATION IN RECTANGULAR COORDINATES

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DECLARATION BY CANDIDATE

I certify that this report and the project to which it refers is the product of my 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

Wave equation is widely used in physics to describe small vibrations of a tightly stretched flexible string for one dimensional case. Stewart (2012) stated that the wave equations are also used to represent some physical problems in physics such as the motion of a waveform, which are an ocean wave, a sound wave, or a light wave. This project will derive the solutions of the vibrating object for obtaining the vertical displacement of a wave in three dimensional wave equation based on rectangular coordinates. In addition, the Fourier series expansion is used to find a solution. The unique solution of homogenous wave equation can be obtained by using the method separation of variables.

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