

**HIGHER DIMENSIONAL LAPLACE EQUATION FOR
NONHOMOGENEOUS DIRICHLET BOUNDARY
CONDITION**

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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

In this project, we start our study of Laplace's equation, which represents the steady state of a field that depends on two or more independent variables, which are typically spatial. We demonstrate the decomposition of the nonhomogeneous Dirichlet Boundary value problem for the Laplacian on a rectangular domain and solid cuboid. For the rectangular domain, we separate into a sequence of four boundary value problems which each having only two boundary segment that has nonhomogeneous boundary conditions and the remainder of the boundary is subject to homogeneous boundary conditions. Then for the solid cuboid, we separate into a sequence of six boundary value problems which each having only two boundary segment that has nonhomogeneous boundary conditions and the remainder of the boundary is subject to homogeneous boundary conditions. These latter problems can then be solved by separation of variables method.

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