

Construction of the Green's Function for One Problem of Rectangular Region

Yusupjon P. Apakov

*Department of Higher Mathematics, Namangan Engineer-Pedagogical
Institute, Namangan, Uzbekistan*

E-mail: yuapakov@list.ru, apakov.1956@mail.ru

ABSTRACT

In this work, the first boundary value problem is studied for the third-order differential equation $U_{xxx} - U_{yy} = f(x, y)$ with multiple characteristics in the region $D = \{(x, y) : 0 < x < p, 0 < y < l\}$. By the method of energy integral it is proved uniqueness of solution. Green's function is constructed for the first boundary-value problem and through which the explicit solution of the formulated problem is presented.

Keywords: boundary value problem, the third-order differential equation, Green's function, solution.

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