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Applications of Multiple Hypergeometric Function of Srivastava-Daoust and Generalized Polynomials of Srivastava in Two Boundary Value Problems

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Abstract

In the present paper, we shall employ multiple hypergeometric function of Srivastava and Daoust ([5, 6, 7]; also see [8]) and generalized polynomials of Srivastava [9] in two boundary value problems.

First we evaluate an integral involving the product of the general class of polynomials of Srivastava [9] and multiple hypergeometric function of Srivastava and Daoust ([5, 6, 7]; also see [8]) and then we make its applications to solve

- I. a problem on heat conduction in a finite bar and to establish an expansion formula involving product of the above general class of polynomials and the multiple hypergeometric function. Some special cases are also discussed.
- II. another problem on electrostatic potential in spherical region.

Problem - 1

A Problem on Heat Conduction in a Finite Bar

1. Introduction

Srivastava, Gupta and Goyal [11] have discussed a problem on heat conduction in a finite bar using H-function to two variables of Srivastava and Panda [10]. Chandel and Gupta [1] have discussed this problem involving multiple hypergeometric function of several variables of Srivastava and Daoust [5, 6, 7].

Here in this paper, we discuss the same problem by employing the product of the general class of polynomials of Srivastava [8] and the multiple hypergeometric function of several variables of Srivastava and Daoust ([5, 6, 7]; also see Srivastava

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