

SOLUTION OF HEAT EQUATION ON A SEMI INFINITE LINE USING FOURIER COSINE TRANSFORM OF I-FUNCTION OF ONE VARIABLE

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ABSTRACT

In the present paper we have considered the problem of finding the temperature distribution near the end of a long rod which is insulated. For finding the solution we have derived the Fourier cosine transform for the I-function of one variable and then this transform is used to solve a boundary value problem for finding the temperature distribution near the end of the long rod which is insulated over the interval $0 < x < \infty$ and it seems that it is totally a new approach which we have adopted for solving such kind of problems

Our results are so general in nature that by suitably specializing the parameters, many more known and new results can be obtained. A few particular cases are also established in the present paper.

KEYWORDS: Fourier Cosine Transform, Saxena's I-Function of One Variable, Boundary Value Problem