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Article outline

Abstract
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Applied Mathematics and Computation

Volume 68, Issues 2–3, 15 March 1995, Pages 153–188

Orthogonality relations and generating functions for Jacobi polynomials and related hypergeometric functions ☆

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Abstract

The authors begin by examining the validity of some orthogonality relations and expansion formulas (asserted recently by S. D. Bajpai [1]) involving a class of hypergeometric polynomials which are essentially certain modified Jacobi polynomials. The corrected version of each of these orthogonality relations is shown to follow readily from the familiar orthogonality property of the classical Jacobi polynomials. A brief discussion is then presented about the applicability of an orthogonality property for the first few Jacobi polynomials, but over a semi-infinite interval, which was considered by V. Romanovski [2] and (more recently) by S. D. Bajpai [3]. Several families of generating functions for Jacobi and Laguerre polynomials, and for various related hypergeometric functions in one and more variables, are also considered systematically.

☆ This work was supported, in part, by the National Science Council of the Republic of China under Grant NSC-82-0208-M-1-145 and, in part, by the Natural Sciences and Engineering Research Council of Canada under Grant OGP0007353.

1 The present investigation was initiated during the second-named author's visit to the Institute of Mathematics (Academia Sinica) at Taipei in July 1993.

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