

On the eigenvalue problem for a particular class of Jacobi matrices

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A function F with simple and nice algebraic properties will be defined on a subset of the space of complex sequences. A relation between the function F and the eigenvalue problem for the Jacobi matrix of a special type will be illustrated. Especially, it will be shown the spectrum of infinite Jacobi matrix whose parallels to the diagonal are constant and the diagonal depends linearly on the index coincides with zeros of the Bessel function of the first kind as function of its order.