



## Second-Order Sturm-Liouville Difference Equations And Orthogonal Polynomials (Paperback)

By Alouf Jirari

American Mathematical Society, United States, 1995. Paperback. Condition: New. Language: English . Brand New Book. This well-written book is a timely and significant contribution to the understanding of difference equations. Presenting machinery for analysing many discrete physical situations, the book will be of interest to physicists and engineers as well as mathematicians. The book develops a theory for regular and singular Sturm-Liouville boundary value problems for difference equations, generalizing many of the known results for differential equations. Discussing the self-adjointness of these problems as well as their abstract spectral resolution in the appropriate  $L^2$  setting, the book gives necessary and sufficient conditions for a second-order difference operator to be self-adjoint and have orthogonal polynomials as eigenfunctions. These polynomials are classified into four categories, each of which is given a properties survey and a representative example. Finally, the book shows that the various difference operators defined for these problems are still self-adjoint when restricted to energy norms. This book is suitable as a text for an advanced graduate course on Sturm-Liouville operators or on applied analysis.



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