Asymptotics of the Discrete Chebyshev and the Hahn Polynomials

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Abstract

Asymptotic expansions are derived for the discrete Chebyshev polynomials $t_n(x, N)$ as $N \to \infty$ and $n/N \to b$, where $b \in (0, 1)$. Cases are considered, when the parameter b approaches the endpoints of the interval (0,1). Asymptotics of the Hahn polynomials $Q_n(x; \alpha, \beta, N)$ is also discussed.