ON THE APPROXIMATION OF ANALYTIC FUNCTIONS BY THE q-BERNSTEIN POLYNOMIALS IN THE CASE $q > 1$[*]

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Abstract. Since for $q > 1$, the q-Bernstein polynomials $B_{n,q}$ are not positive linear operators on $C[0,1]$, the investigation of their convergence properties turns out to be much more difficult than that in the case $0 < q < 1$. In this paper, new results on the approximation of continuous functions by the q-Bernstein polynomials in the case $q > 1$ are presented. It is shown that if $f \in C[0,1]$ and admits an analytic continuation $f(z)$ into $\{z : |z| < a\}$, then $B_{n,q}(f;z) \to f(z)$ as $n \to \infty$, uniformly on any compact set in $\{z : |z| < a\}$.

Key words. q-integers, q-binomial coefficients, q-Bernstein polynomials, uniform convergence

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