

Variations on strongly lacunary quasi Cauchy sequences

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Abstract: In this paper $N_\theta^\alpha(p)$ -ward continuity is introduced in the sense that a real valued function f defined on a subset A of \mathbf{R} , the set of real numbers is $N_\theta^\alpha(p)$ -ward continuous if $(f(x_k))$ is $N_\theta^\alpha(p)$ -quasi-Cauchy whenever (x_k) is $N_\theta^\alpha(p)$ -quasi-Cauchy sequence of points in A , where a sequence (x_k) is called $N_\theta^\alpha(p)$ -quasi-Cauchy if $\lim_{r \rightarrow \infty} \frac{1}{h_r^\alpha} \sum_{k \in I_r} |\Delta x_k|^p = 0$, where $\Delta x_k = x_{k+1} - x_k$ for each positive integer k , p is a constant positive integer, α is a constant in $]0, 1]$, $I_r = (k_{r-1}, k_r]$, and $\theta = (k_r)$ is a lacunary sequence, which is an increasing sequence of positive integers such that $k_0 \neq 0$, and $h_r : k_r - k_{r-1} \rightarrow \infty$.

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