

Ideal statistically quasi Cauchy sequences

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Abstract: An ideal I is a family of subsets of positive integers \mathbf{N} which is closed under taking finite unions and subsets of its elements. A sequence (x_k) of real numbers is said to be $S(I)$ -statistically convergent to a real number L , if for each $\varepsilon > 0$ and for each $\delta > 0$ the set $\{n \in \mathbf{N} : \frac{1}{n}|\{k \leq n : |x_k - L| \geq \varepsilon\}| \geq \delta\}$ belongs to I . We introduce $S(I)$ -statistically ward compactness of a subset of \mathbf{R} , the set of real numbers, and $S(I)$ -statistically ward continuity of a real function in the senses that a subset E of \mathbf{R} is $S(I)$ -statistically ward compact if any sequence of points in E has an $S(I)$ -statistically quasi-Cauchy subsequence, and a real function is $S(I)$ -statistically ward continuous if it preserves $S(I)$ -statistically quasi-Cauchy sequences where a sequence (x_k) is called to be $S(I)$ -statistically quasi-Cauchy when (Δx_k) is $S(I)$ -statistically convergent to 0. We obtain results related to $S(I)$ -statistically ward continuity, $S(I)$ -statistically ward compactness, N_θ -ward continuity, and slowly oscillating continuity.

Keywords: sequences, series, ideal convergence, continuity

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