Sharp by order two-sided estimates for one class of function series

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Abstract: In this work we consider the function series

$$(1) \qquad J := J_t = \sum_{i=t}^{\infty} \frac{1}{\prod_{j=t}^{i}(1 + r_j)}, \ t = 0, 1, 2, \ldots,$$

with function $r_t \geq 0$, $\prod_{j=t}^{t+T-1}(1 + r_j) < \infty$, $T = 1, 2, \ldots$. We find sharp by order two-sided estimates for the function J.

We note that the functional series (1) was obtained by Kerimkhulle S. and Aitkozha Zh. in [1] as a solution of the first order linear difference equation. Also note that in [2], Lukachev M. and Shuster L. obtained find sharp by order two-sided estimates in case the integral functional (1). For a proof of main results is obtained by Otelbayev (see [3]) variational methods for localization.

Keywords: function series, upper estimate, lower estimate, sharp by order two-sided estimate

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