Oscillation theorems for non-linear difference equation of the second order

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Abstract.
We obtain some oscillation criteria for the solutions of the non-linear difference equation of the form
\[ \Delta (r_n x_n (x_n)) + q_n \varphi (g (x_{n+1}), x_{n+1} x_{n+1}) = 0, \ n = 0, 1, 2, \ldots, \]
where \( u (u, v) > 0 \) for all \( u \neq 0, x (x) > 0 \) and \( x (x) > 0 \) for all \( x \neq 0, \varphi (x) > 0 \) for all \( x \in R, \{r_n, q_n\}_{n=0}^{\infty} \) is sequence of positive real numbers and \( \{q_n\}_{n=0}^{\infty} \) is sequence of real values. The relevance of our theorems becomes clear due to a carefully selected examples.

References

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