



Comparison theorems for second order nonlinear difference equations

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Abstract

New oscillation results are obtained for the second order nonlinear difference equation

$$\Delta(r_n f(\Delta x_{n-1})) + g(n, x_n) = 0,$$

and its functional form

$$\Delta(r_n f(\Delta x_{n-1})) + g(n, x_{\tau_n}) = 0.$$

The role played by the argument τ_n on the oscillation of the functional equation is explored. In particular, we characterize a class of sequences $\{\tau_n\}$ which have a harmless effect on the oscillation of this type of equations. Some of our results generalize, improve or unify known fundamental oscillation results for several particular cases of the above equations.

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