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Asymptotic behaviour of solutions of the second order difference equations. (English)

Zbl 0799.39001

Demonstr. Math. 26, No. 3-4, 811-819 (1993).

Under certain conditions, for the solutions of (*) $\Delta^2 y_n = a_n y_{n+1} + f_n(y_n)$ with $\Delta y_n = y_{n+1} - y_n$ there are proved the representations $y_n = \alpha_n u_n + \beta_n v_n$, where $\alpha_n \rightarrow \alpha$, $\beta_n \rightarrow \beta$ for $n \rightarrow \infty$, and u_n, v_n are linearly independent solutions of (*) with $f_n \equiv 0$. In case of $a_n \equiv 0$ in (*), this result is sharpened to $y_n = \alpha n + \beta + o(1)$ for $n \rightarrow \infty$.

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MSC:

39A10 Additive difference equations

Cited in 2 Documents

Keywords:

second order difference equations; asymptotic behaviour

Full Text: DOI