

**Gibbons, C. H.; Kulenovic, M. R. S.; Ladas, G.**

**On the recursive sequence**  $x_{n+1} = \frac{\alpha + \beta x_{n-1}}{\gamma + x_n}$ . (English) Zbl 1039.39004

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Summary: We investigate the boundedness character, the oscillatory and periodic nature, and the global stability behavior of the nonnegative solutions of the difference equation

$$x_{n+1} = \frac{\alpha + \beta x_{n-1}}{\gamma + x_n}, \quad n = 0, 1, \dots$$

where the parameters  $\alpha, \beta$ , and  $\gamma$  are nonnegative real numbers.

**MSC:**

**39A11** Stability of difference equations (MSC2000)

**39A20** Multiplicative and other generalized difference equations

Cited in **2** Reviews  
Cited in **56** Documents

**Keywords:**

bounded solution; multiplicative difference equation; oscillation; period-two solution; global stability; nonnegative solutions