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23284-2014, and **Jennifer S. Sanchez**. *On $x_{n+1} = \max \left\{ \frac{A_n}{x_n}, \frac{B_n}{x_{n-1}} \right\}$*

With Both Parameters Period-Four or Period-Five. Preliminary report.

We investigate the periodic character of positive solutions of the difference equation $x_{n+1} = \max \left\{ \frac{A_n}{x_n}, \frac{B_n}{x_{n-1}} \right\}$, where $\{A_n\}_{n=0}^{\infty}$ and $\{B_n\}_{n=0}^{\infty}$ are both periodic sequences of positive numbers with (not necessarily prime) period four or five. We show that every positive solution is eventually periodic with (not necessarily prime) period eight. This is work-in-progress, and ultimately our objective is to extend the proof of this investigation (and others) and generalize our results to the case when $\{A_n\}_{n=0}^{\infty}$ is a periodic sequence of positive numbers with period $p \in \{1, 2, \dots\}$, $\{B_n\}_{n=0}^{\infty}$ is a periodic sequence of positive numbers with period $q \in \{1, 2, \dots\}$, and neither p nor q is a multiple of three, in which case we intend to show that every positive solution is eventually periodic with period (not necessarily prime) $4 \cdot \text{lcm}(p, q)$. (Received September 26, 2005)