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SYNOPSIS

This month's "free sample" is:

2446. *Proposed by Catherine Shevlin, Wallsend upon Tyne, England.*

A sequence of integers, $\{a_n\}$ with $a_1 > 0$, is defined by

$$a_{n+1} = \begin{cases} \frac{a_n}{2} & \text{if } n \equiv 0 \pmod 4, \\ 3a_n + 1 & \text{if } n \equiv 1 \pmod 4, \\ 2a_n - 1 & \text{if } n \equiv 2 \pmod 4, \\ \frac{a_n + 1}{4} & \text{if } n \equiv 3 \pmod 4. \end{cases}$$

Prove that there is an integer m such that $a_m = 1$.

(Compare **OQ**.117 in *OCTOGON*, vol 5, No. 2, p. 108.)