1125-VK-3023 **Mojtaba Moniri*** (m-moniri@wiu.edu). *Pairs of close cycle-points in a logistic map: 5-periodicity or 10?*

The logistic map with parameter r is defined on $[0,1]$ as $f_r(x) = rx(1-x)$. Most parameters $r \in (3.570, 4)$ exhibit a chaotic orbit for an arbitrary initial point $x_0 \in (0,1)$. However the interval $(3.739, 3.744)$ is inside a period-5, 10, 20, 40, etc., region (with successive period-doubling bifurcations). Here we are concerned with the particular parameter $r = 3.74$ to clarify on some misleading literature, like half of a dozen items which we mention, that claim an attracting 5-cycle. For $x_0 = 0.5$, some relied on, just as early as, the $100-110$th terms, all up to only six decimal digits. We give a Mathematica code which outputs the $100,000,000$th term followed by the next 19, all with 22 digits (in ≈ 3 minutes on an ordinary desktop). It indicates two cycles of length 10. The five pairs of counterpart numbers agree up to $13-15$ digits. Generally speaking, and in similar situations, one could challenge this via two attacking approaches. One is to iterate more in an effort to see if we can overcome disagreements: can the digits be stabilized and discrepancies go away (10 to 5 undertake)? In parallel, one can zoom out on the digits in an effort to see if the current agreements persist, or rather differences show up (10 to 20 undertake). (Received September 20, 2016)