1145-39-86 **Candace Marie Kent*** (cmkent@vcu.edu), 3510 Hanover Avenue, Richmond, VA 23221.

Heuristic Observation on the Comparison Between the Behavior of Orbits in the $3x+1$ *Problem and the* $5x+1$ *Problem.* Preliminary report.

We heuristically address the $3x+1$ Problem and the corresponding $5x+1$ Problem. We make an observation, based on a multitude of computations, which may, in turn, lend its support of the conjectures that no orbit under the $3x+1$ map is divergent to $+\infty$ (and so every orbit is eventually periodic as a cycle, in particular as $(1,4,2)$) and almost all orbits under the $5x+1$ map are divergent to $+\infty$. Our representation of the natural numbers (which are the iterates of orbits under the $3x+1$ and $5x+1$ maps) is influenced by the Sharkovsky ordering of the natural numbers. (Received July 26, 2018)