1047-37-264 **Marc Chamberland***, Department of Mathematics and Statistics, Grinnell College, Grinnell, IA 50112. *The Mean-Median Map.*

Starting with a non-empty finite set $S_n = \{x_1, \ldots, x_n\} \subset R$, generate the unique number x_{n+1} which satisfies the *mean-median equation*

$$\frac{x_1 + \cdots + x_n + x_{n+1}}{n+1} = median(S_n).$$

As usual, we define the median of the set $S_n = \{x_1, \ldots, x_n\}$, where $x_1 \leq \cdots \leq x_n$, as

$$median(S_n) = \begin{cases} x_{(n+1)/2}, & \text{n odd,} \\ \frac{x_{n/2} + x_{n/2+1}}{2}, & \text{n even.} \end{cases}$$

By applying the mean-median equation repeatedly to a set one generates an infinite sequence $\{x_k\}_{k=1}^{\infty}$.

The dynamics of this map are surprising! Most maps tend to have either relatively simple dynamics or chaotic dynamics. While the mean-median map seems to be asymptotically constant, it seems very hard to predict.

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