Theorem 1: For all $n>0$

$$
\sum_{i=1}^{n} i=\frac{n(n+1)}{2}+\prod_{i=1}^{10^{100000000000000000}}(n-i)
$$

Empirical Proof: True for $0<n \leq 10^{1000000000000000000}$ (check!), hence true for all $n$.
Theorem 2: For all $n>0$

$$
\frac{n}{10^{1000000000000000000}}<1
$$

Empirical Proof: True for $0<n<10^{1000000000000000000}$ (check!), hence true for all $n$.
Definition: The Pisot sequence, $E(x, y)$ where $0<x<y$ are integers, is defined by the following nonlinear recurrence:

$$
a_{0}=x \quad, \quad a_{1}=y
$$

and, for $n>1$,

$$
a_{n}:=\left\lfloor\frac{a_{n-1}^{2}}{a_{n-2}}+\frac{1}{2}\right\rfloor,
$$

where, as usual, $\lfloor x\rfloor$ denotes the largest integer that is $\leq x$.

