PROPOSED PROBLEM OF NUMBER THEORY

BY PROF. KEN TAUSCHER

Let $N$ be a positive integer. Let $\eta$ be the function that associates to any non-null integer $P$ the smallest number $Q$ such that $\eta(R) > N$ for any $R > K$.

Solution:

Lemma: For any $X > Y$, we have $\eta(X) > Y$.

Proof by reductio ad absurdum:
If $\eta(X) = A \leq Y$, then $A! \leq Y! < X$, whence $A!$ may not be divisible by $X$.

Reference:

Current Address:
Ken Tauscher
14 / 162 Excelsior St.
Merrylands 2160
N.S.W., Sydney
Australia