PROOF TO ONE OF LANDAU'S FOUR PROBLEMS.

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1. INTRODUCTION.

This paper tries to demonstrate the infinity of numbers of the form $\left(n^2+1\right)$, and for this, we will obtain another larger prime number and in the same way$(n+k)^2+1$ where $k << n$.

2. DEMONSTRATION.

Let $\left(n^2+1\right)$ the last prime number of this way
$(n+k)^2+1=\left(n^2+1\right)+k\left(k+2n\right)$
Dividing by $\left(n^2+1\right) \Longrightarrow \frac{\left(n^2+1\right)+k(k+2n)}{n^2+1}=1+\frac{k(k+2n)}{(n^2+1)}$
$\frac{k(k+2n)}{(n^2+1)}$ is rational for being $k\left(k+2n\right) << \left(n^2+1\right)$
Therefore $(n+k)^2+1$ is a prime number $> \left(n^2+1\right)$

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