# There Is No Largest Prime Number

## With an introduction to a new proof technique

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27th International Symposium on Prime Numbers, –280

Results
Proof of the Main Theorem

# There Is No Largest Prime Number

The proof uses *reductio ad absurdum*.

**Theorem**

*There is no largest prime number.*

**Proof.**

1. Suppose $p$ were the largest prime number.
2. Let $q$ be the product of the first $p$ numbers.
3. Then $q + 1$ is not divisible by any of them.
4. Thus $q + 1$ is also prime and greater than $p$. $\square$