# There Is No Largest Prime Number 

 With an introduction to a new proof techniqueEuklid of Alexandria<br>Department of Mathematics<br>University of Alexandria

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(1) 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 $p$.

