

There Is No Largest Prime Number

With an introduction to a new proof technique

Euklid of Alexandria

Department of Mathematics
University of Alexandria

27th International Symposium on Prime Numbers, –280

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.

- ❶ Suppose p were the largest prime number.
- ❷ Let q be the product of the first p numbers.
- ❸ Then $q + 1$ is not divisible by any of them.
- ❹ Thus $q + 1$ is also prime and greater than p . □