

There Is No Largest Prime Number

Euclid of Alexandria `euclid@alexandria.edu`

July 9, 2016

Empty slide

There Is No Largest Prime Number

The proof uses *reductio ad absurdum*.

Theorem

There is no largest prime number.

- 1 Suppose p were the largest prime number.
- 2
- 3
- 4 But $q + 1$ is greater than 1, thus divisible by some prime number not in the first p numbers.

There Is No Largest Prime Number

The proof uses *reductio ad absurdum*.

Theorem

There is no largest prime number.

- 1 Suppose p were the largest prime number.
- 2 Let q be the product of the first p numbers.
- 4 But $q + 1$ is greater than 1, thus divisible by some prime number not in the first p numbers.

There Is No Largest Prime Number

The proof uses *reductio ad absurdum*.

Theorem

There is no largest prime number.

- 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 But $q + 1$ is greater than 1, thus divisible by some prime number not in the first p numbers.

A longer title

- one
- two