There Is No Largest Prime Number

The proof uses reductio ad absurdum.

Euclid of Alexandria
27th International Symposium of Prime Numbers

Theorem

There is no largest prime number.

1 Suppose *p* were the largest prime number.

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

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.

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