There Is No Largest Prime Number

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The proof uses *reductio ad absurdum*.

Theorem

There is no largest prime number.

Suppose p were the largest prime number.

Let q be the product of the first p numbers.

Then $q + 1$ is not divisible by any of them.

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

A longer title

one

two