There Is No Largest Prime Number With an introduction to a new proof technique

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Outline

Results

Proof of the Main Theorem

Proof That There Is No Largest Prime Number

A proof using reductio ad absurdum.

Theorem

There is no largest prime number.

Proof.

- 1. Suppose *p* were the largest prime number.
- 2. Let $q := 1 + \prod_{i=1}^{p} i = 1 + p!$.
- 3. Then q is not divisible by any $p' \in \{1, ..., p\}$.
- 4. Thus q > p is also prime.