

# THERE IS NO LARGEST PRIME NUMBER

## WITH AN INTRODUCTION TO A NEW PROOF TECHNIQUE

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## 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.

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. Thus  $q + 1$  is also prime and greater than  $p$ . □