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AUSTRALIA-AOTEAROA CONSORTIUM FOR EPIDEMIC FORECASTING & ANALYTICS



IDDU

INFECTIOUS DISEASE DYNAMICS UNIT

There Is No Largest Prime Number

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Theorem

There is no largest prime number.

1. Suppose p were the largest prime number.
2. Consider the number $p + 1$.
3. $p + 1$ is greater than 1, thus divisible by some prime number not in 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.
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.

▶ one

▶ two

Example block

“You miss 100% of the shots you don’t take.” – Wayne Gretzky

— Michael Scott