Тема презентации

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Outline

1. Motivation

2. Theorem

What Are Prime Numbers?

Definition

A prime number is a number that has exactly two divisors.

Example

- 2 is prime(two divisors: 1 and 2).
- 3 is prime(two divisors: 1 and 3).
- 4 is not prime(three divisors: 1, 2, and 4).

What's Still To Do?

Answered Questions

How many primes are there?

Open Questions

Is every even number the sum of two primes?

An Algorithm for Finding Prime Numbers

```
int main (void) {
    std::vector<bool> is_prime (100, true);
    for (int i = 2; i < 100; i++)
        if(is_prime[i]){
            std::cout << i << " ";
            for (int j = i; j < 100; is_prime[j] = false, j+=i);
        }
    return 0;
}
```

There Is No Largest Prime Number

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.

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