

Nth Prime

There is no tedious description for this problem. You are just required to calculate and output the **Nth** prime number.

Input

The input consists of a single line containing an integer **N**, $N \leq 10^9$.

Output

For each input file, output the **Nth** prime number.

Example

Input:

4

Output:

7

Note

The source limit is enabled to **4000B** in order to restrict and discourage sending solutions with pre-computed tables.