Divisors, inversed (dzielniki-na-odwrot)

Memory limit: 32 MB Time limit: 0.50 s

Write a program, which reads a positive integer N and finds the smallest positive integer M having exactly M divisors and writes the result to standard output.

Input

In the first (and the only one) line of the standard input there is one positive integer N.

Output

In the first (and the only one) line of the standard output there should be one positive integer M – the smallest positive integer having exactly N divisors. If $M > 10^{17}$, `NIE` (the Polish for NO) should be printed.

Limits

$1 \leq N \leq 100\,000$.

Example

Input	Output
4	6