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# B. Complex Plane

time limit per test: 1.0 s memory limit per test: 256 MB input: standard input output: standard output

During thanksgiving holidays where extended family members gather and meet, Thomas and Merry is holding a wedding, inviting friends and relatives. Alex, a professor at math department wants to bring some pieces of chocolate to the newly married. The professor is fascinated about number theory, so he will only give a prime number of pieces of chocolate.

A prime number p is an integer that will not be divided by any positive integer other than 1 and itself, or any integer other than  $\pm 1$  and  $\pm p$  if you consider negatives. A gift in prime number carries Alex's best wish that the couple will never be divided or separated, no matter what happens in their lives.

Now that Alex knows about complex integers and special primes, he will only give pieces of chocolate in special primes.

Given a positive integer N, can you tell if it is a special prime or not?



### Input

Input consists of an integer N.

For 50% of the input,  $2 \le N \le 10^5$ . For 100% of the input,  $2 \le N \le 10^9$ .

### Output

Output "YES" if it's a special prime as specialized in the statement, and "NO" if it's not.

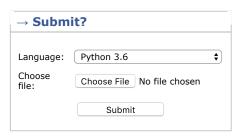
# **Examples**

Litatiples	
input	Сору
5	
output	Сору
NO	

input	Сору
7	
output	Сору

# UW-Madison Thanksgiving Cook Off 18 Private Participant

Thanksgiving Cook Off 18		
Finished		
Practice		
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ightarrow Last submissions		
Submission	Time	Verdict
<u>45849540</u>	Nov/17/2018 00:55	Partial result: 40 points
45849468	Nov/17/2018 00:52	Runtime error on test 22
45849437	Nov/17/2018 00:50	Runtime error on test 22
<u>45849351</u>	Nov/17/2018 00:46	Runtime error on test 22

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YES

## Note

Multiplication between complex numbers goes like this: (a+bi)(c+di)=(ac-bd)+(ad+bc)i. You know how to do division out of this. :)

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