

E. Number With The Given Amount Of Divisors

time limit per test: 2 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

Given the number n , find the smallest positive integer which has exactly n divisors. It is guaranteed that for the given n the answer will not exceed 10^{18} .

Input

The first line of the input contains integer n ($1 \leq n \leq 1000$).

Output

Output the smallest positive integer with exactly n divisors.

Examples

input	Copy
4	
output	Copy
6	

input	Copy
6	
output	Copy
12	

→ Attention

Package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then value 800 ms will be displayed and used to determine the verdict.

Codeforces Beta Round #27 (Codeforces format, Div. 2)

Finished

→ Practice?

Want to solve the contest problems after the official contest ends? Just register for practice and you will be able to submit solutions.

[Register for practice](#)

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

[Start virtual contest](#)

→ Problem tags

[brute force](#) [dp](#) [number theory](#) [*2000](#)

No tag edit access

→ Contest materials

- Announcement

- Tutorial #1
- Tutorial #2 (en)
- Tutorial #3 (en)

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