Problem I
Power of Divisors
Time Limit: 1 Second, Memory Limit: 2G

Consider a positive integer n. Let $f(n)$ be the number of positive integer divisors of n. For example, if $n = 8$ then $f(n) = 4$, since the divisors of 8 are 1, 2, 4 and 8.

Now, consider a positive integer x. What is the smallest value of n such that $n^{f(n)} = x$?

Input

The single line of input contains a single integer x ($1 \leq x \leq 10^{18}$). This is the x of the statement above.

Output

Output a single integer, which is the smallest value of n such that $n^{f(n)} = x$, or -1 if no such value of n exists.

Sample Input 1	Sample Output 1
15625	25

Sample Input 2	Sample Output 2
64000000	20

Sample Input 3	Sample Output 3
65536	-1

This page is intentionally left blank.