

Divisors [II]

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

points: 100 · problem code: divisors2 · author: glipR

The blurb for this problem is the same as Divisors [I], save for the statement of the problem.

Consider the sequence of all natural numbers, and then for each number, listing each of the divisors of this number in increasing order:

123456...

becomes:

11213124151236...

Since this (infinite) sequence has a lot of duplicates, we can notate for each digit whether it is the first, second, third... occurrence using a subscript:

$1_1 1_2 2_1 1_3 3_1 1_4 2_2 4_1 1_5 5_1 1_6 2_3 3_2 6_1 \dots$

For the second problem, we'd like to find the exact index of a particular value. For example, 1_1 has index 1, 1_2 has index 2, 2_1 has index 3, and so on.

Input

Input will contain a single value i_j , representing value i_j

Output

Output a single integer representing the 1 index of the value in the sequence

Constraints

$$\bullet 1 \leq i \times j \leq 10^{11}$$

Example

Input

5_1

Output

10