D. Rotatable Number

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Bike is a smart boy who loves math very much. He invented a number called "Rotatable Number" inspired by 142857.

As you can see, 142857 is a magic number because any of its rotatings can be got by multiplying that number by $1, 2, ..., 6$ (numbers from one to number's length). Rotating a number means putting its last several digit into first. For example, by rotating number 12345 you can obtain any numbers: $12345, 51234, 45123, 34512, 23451$. It's worth mentioning that **leading-zeroes** are allowed. So both 4500123 and 0123450 can be obtained by rotating 0012345. You can see why 142857 satisfies the condition. All of the 6 equations are under base 10.

- $142857 \cdot 1 = 142857$;
- $142857 \cdot 2 = 285714$;
- $142857 \cdot 3 = 428571$;
- $142857 \cdot 4 = 571428$;
- $142857 \cdot 5 = 714285$;
- $142857 \cdot 6 = 857142$.

Now, Bike has a problem. He extends "Rotatable Number" under any base b. As is mentioned above, 142857 is a "Rotatable Number" under base 10. Another example is 0011 under base 2. All of the 4 equations are under base 2.

- $0011 \cdot 1 = 0011$;
- $0011 \cdot 10 = 0110$;
- $0011 \cdot 11 = 1001$;
- $0011 \cdot 100 = 1100$.

So, he wants to find the largest b $(1 < b < x)$ so that there is a **positive** "Rotatable Number" (leading-zeroes allowed) of length n under base b.

Note that any time you multiply a rotatable number by numbers from 1 to its length you should get a rotating of that number.

Input

The only line contains two space-separated integers n, x $(1 \le n \le 5 \cdot 10^6, 2 \le x \le 10^9)$.

Output

Print a single integer — the largest b you found. If no such b exists, print `-1` instead.

Examples

input
6 11

output
10

input
5 8

output
-1