

Base Conversion

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

Given two positive integers k and p in decimal representation, please find a positive integer n which is a multiple of k and the sum of each digit of n in base p is minimum.

For example, the decimal number $7_{(10)}$ is presented as $111_{(2)}$ in the base 2, so the sum of each digit is 3.

Output the minimum sum of each digit of n in base p .

Input

The input contains two positive integers k and p , where $2 \leq k \leq 10^6$ and $2 \leq p \leq 10^9$.

Output

Output an integer, indicating the minimum sum of each digit of n in base p .

Examples

| standard input | standard output |
|----------------|-----------------|
| 3 3 | 1 |
| 100 2 | 2 |

Note

In the second sample, a possible n for answer 2 is 4100, and it can be proven that the answer is no less than 2.