

# Equal Digits

Input file: `stdin`  
Output file: `stdout`  
Time limit: 2 seconds  
Memory limit: 256 megabytes

For the given integer  $N$  and digit  $D$ , find the minimal integer  $K \geq 2$  such that the representation of  $N$  in the positional numeral system with base  $K$  contains the maximum possible consecutive number of digits  $D$  at the end.

## Input

The input contains two integers  $N$  and  $D$  ( $0 \leq N \leq 10^{15}$ ,  $0 \leq D \leq 9$ ).

## Output

Output two integers:  $K$ , the answer to the problem, and  $R$ , the the number of consecutive digits  $D$  at the end of the representation of  $N$  in the positional numeral system with base  $K$ .

## Examples

<code>stdin</code>	<code>stdout</code>
3 1	2 2
29 9	10 1
0 4	2 0
90 1	89 2