Problem L – Lazy Printing

Vinícius has an interesting typing machine. The machine accepts instructions consisting of a non-empty string s and a positive integer n. For each such instruction, the machine prints n characters: the i-th (0-based) printed character equals s_r, where r is the remainder after dividing i by the length of s and s_r denotes the r-th (0-based) character of s. For instance, with the sequence of instructions:

1. $s =$ "`ab`", $n = 4$
2. $s =$ "`cd`", $n = 3$
3. $s =$ "`xx`", $n = 2$

the machine will print "`ababcdcxx`".

Vinícius is lazy, so he only gives strings of length at most D to the machine in each instruction. Since he is very lazy, he also wants to use as few instructions as possible. Given a string T and the integer D, help Vinícius find the minimum number of instructions he needs in order to print T using the machine.

Input

The input consists of a single line that contains a string T of lowercase letters followed by the integer D ($1 \leq D \leq |T| \leq 2 \times 10^5$), as described in the statement.

Output

Output a single line with an integer indicating the minimum number of instructions Vinícius needs.

Sample input 1	**Sample output 1**
`ababcdcxx 2`	`3`

Sample input 2	**Sample output 2**
`aaabbcd 1`	`4`

Sample input 3	**Sample output 3**
`abcabca 3`	`1`