

Segsi Substrings

You are given a string s and a positive integer k . Form the string t by joining k copies of s together. Determine the number of substrings of t that are equal to 'seg*s*'.

Input

Your first line will contain s , the length of s is less than or equal to 100,000.

Your second line will contain k , ($k \leq 1,000,000,000$).

Output

A single integer representing the number of substrings which are equal to 'seg*s*'.

Examples

Input 1

siseg
10

Output 1

9

Input 2

seg*s*
10

Output 2

10