

7948 Periodic Strings

Define a *k*-periodic string as follows:

A string *s* is *k*-periodic if $|s|$, the length of the string, is a multiple of *k* and, if you chop the string up into $|s|/k$ substrings of length *k*, then each of those substrings (except the first) is the same as the previous substring, but with its last character moved to the front.

For example, the following string is 3-periodic:

abccabbcaabc

The above string breaks up into substrings **abc**, **cab**, **bca**, and **abc**, and each substring (except the first) is a rotation of the previous substring (**abc** → **cab** → **bca** → **abc**).

Given a string, determine the smallest *k* for which the string is *k*-periodic.

Input

The input file contains several test cases, each of them will be a single line containing a string *s*, ($1 \leq |s| \leq 100$), consisting only of lower-case letters.

Output

For each test case, print a single line containing an integer denoting the smallest value of *k* for which the input string is *k*-periodic.

Sample Input

```
aaaaaaaa
abbaabbaabba
abcdef
abccabbcaabc
```

Sample Output

```
1
2
6
3
```