

E - Strings of Impurity

Editorial



Time Limit: 2 sec / Memory Limit: 1024 MB

Score : 500 points

Problem Statement

Given are two strings s and t consisting of lowercase English letters. Determine if there exists an integer i satisfying the following condition, and find the minimum such i if it exists.

- Let s' be the concatenation of 10^{100} copies of s . t is a subsequence of the string $s'_1s'_2 \dots s'_i$ (the first i characters in s').

Notes

- A subsequence of a string a is a string obtained by deleting zero or more characters from a and concatenating the remaining characters without changing the relative order. For example, the subsequences of `contest` include `net`, `c`, and `contest`.

Constraints

- $1 \leq |s| \leq 10^5$
- $1 \leq |t| \leq 10^5$
- s and t consists of lowercase English letters.

Input

Input is given from Standard Input in the following format:

```
s
t
```

Output

If there exists an integer i satisfying the following condition, print the minimum such i ; otherwise, print `-1`.

Sample Input 1

Copy

Copy

```
contest
son
```

Sample Output 1 Copy

```
10 Copy
```

$t = \text{son}$ is a subsequence of the string `contestcon` (the first 10 characters in $s' = \text{contestcontestcontest}\dots$), so $i = 10$ satisfies the condition.

On the other hand, t is not a subsequence of the string `contestco` (the first 9 characters in s'), so $i = 9$ does not satisfy the condition.

Similarly, any integer less than 9 does not satisfy the condition, either. Thus, the minimum integer i satisfying the condition is 10.

Sample Input 2 Copy

```
contest
programming Copy
```

Sample Output 2 Copy

```
-1 Copy
```

$t = \text{programming}$ is not a substring of $s' = \text{contestcontestcontest}\dots$. Thus, there is no integer i satisfying the condition.

Sample Input 3 Copy

```
contest
sentence Copy
```

Sample Output 3 Copy

```
33 Copy
```

Note that the answer may not fit into a 32-bit integer type, though we cannot put such a case here.