D. Match & Catch

time limit per test: 1 second
memory limit per test: 512 megabytes
input: standard input
output: standard output

Police headquarter is monitoring signal on different frequency levels. They have got two suspiciously encoded strings s_1 and s_2 from two different frequencies as signals. They are suspecting that these two strings are from two different criminals and they are planning to do some evil task.

Now they are trying to find a common substring of minimum length between these two strings. The substring must occur only once in the first string, and also it must occur only once in the second string.

Given two strings s_1 and s_2 consist of lowercase Latin letters, find the smallest (by length) common substring p of both s_1 and s_2, where p is a unique substring in s_1 and also in s_2. See notes for formal definition of substring and uniqueness.

Input

The first line of input contains s_1 and the second line contains s_2 $(1 \le |s_1|, |s_2| \le 5000)$. Both strings consist of lowercase Latin letters.

Output

Print the length of the smallest common unique substring of s_1 and s_2. If there are no common unique substrings of s_1 and s_2 print -1.

Examples

input
apple pepperoni
output
2

input
lover driver
output
1

input
bidhan roy
output
-1

input
testsetses teeptes
output

```
3
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Note

Imagine we have string $a = a_1a_2a_3...a_{|a|}$, where $|a|$ is the length of string a, and a_i is the i^{th} letter of the string.

We will call string $a_la_{l+1}a_{l+2}...a_r\ (1 \le l \le r \le |a|)$ the substring $[l, r]$ of the string a.

The substring $[l, r]$ is unique in a if and only if there is no pair l_1, r_1 such that $l_1 \neq l$ and the substring $[l_1, r_1]$ is equal to the substring $[l, r]$ in a.

dp | string suffix structures | strings

No tag edit access

→ Contest materials

- Announcement
- Tutorial