Banana Brain's Bracelet

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	512 megabytes

Darkwing Duck is in trouble again! As soon as he arrived to rest in the Banana Paradise resort located around the Great Circle Lake, it was announced that Mr Banana Brain is attacking this place. As any villain he is going to rob some set of **consecutively** placed houses and escape with the loot.

The panorama of the Banana Paradise from the center of the lake can be represented as a *cyclic string* A (be sure to take a look at the Note section to avoid misunderstanding) where each character represents the shape of the corresponding building. Different buildings may have the same shape, and hence are represented in the string by equal characters. Mr Banana Brain has picked an unknown substring B of this cyclic string. Of course, the length of B is not greater than the length of A, as it doesn't make sense to rob the same house twice.

Fortunately, the police has a hint to this tricky affair. There is a rumour that the villain has given his assistant a bracelet with the sequence of shapes of houses they are going to rob printed on it. As Mr Banana Brain is bad at design, it was impossible to understand where the beginning of the initial substring is.

During a firefight police has managed to get one piece of some bracelet which police assume to be the bracelet with the robbery plan. Some string C is written on the piece. If the assumption is correct, there exists a cyclic string B obtained from a substring of the cyclic string A such that C is a substring of B. Your task is to determine the maximum possible length of a valid substring B or detect that this part of the bracelet could not be related to the crime being prepared, in other words, there is no cyclic string B satisfying all the requirements.

Input

In the first line of the input, there is a non-empty string consisting of English letters, digits and characters '`,`', '`!`', '`_`', '`.`' and '`-`' representing the houses in the Banana Paradise clockwise.

In the second line of input, there is a non-empty string consisting of English letters, digits and characters '`,`', '`!`', '`_`', '`.`' and '`-`' representing the found bracelet part.

The length of each string is no more than $5 \cdot 10^5$ characters. Note that uppercase and lowercase English letters are considered different.

Output

Output one integer: the size of biggest part of Banana Paradise which can be written on the whole bracelet, or `-1` if such part does not exist.

Examples

standard input	standard output
`BananaParadise` `BP`	`9`
`Desinformation` `Banana`	`-1`

Note

In the first sample Mr Banana Brain could rob segment "`ParadiseB`" which has length 9.

In this problem, a cyclic string can be treated as a string written on the circle. Formally, think of a set containing all cyclic shifts of some string. Two cyclic strings are considered to be equal if their sets of all cyclic shifts are equal. A string is a substring of the given cyclic string if it is a substring of any of its cyclic shifts.