P4 - Encryption Scheme

Most text encryption schemes use a secret key string to convert the plain text to the enciphered text in some way. A novel method being tested by the Australian Security Service consists of a transformation of a key string \( K \) into a target string \( P \) using block moves. Each block move is of the form \( \text{copy}(\text{start}, \text{length}) \), where \( \text{start} \) indicates a position in \( K \) and \( \text{length} \) is the number of characters to be copied from \( K \) to \( P \). Since the idea is to eventually transmit only the block moves, the principle is to use as few block moves as possible. For example if:

\[
\begin{align*}
K & : \text{abaabba} \\
P & : \text{aaabbabbbbaaa}
\end{align*}
\]

Assuming that here string positions start with 1, two shortest block move sequences would be:

\[
\text{copy}(3,2);\text{copy}(4,3);\text{copy}(2,2);\text{copy}(5,2);\text{copy}(2,3);\text{copy}(1,1)
\]

or

\[
\text{copy}(7,1);\text{copy}(3,3);\text{copy}(5,2);\text{copy}(4,2);\text{copy}(5,3);\text{copy}(3,2)
\]

The actual shortest block move sequences are not unique but the minimum number is, 6 in this case. If the moves are now transmitted, then it is possible to construct the plaintext message \( P \) from the key string \( K \).

The Australian Security Service is now automating this procedure, so given \( K \) and \( P \) they need to count the minimum number of block moves from \( K \) to \( P \). To make things simple at the beginning, they are considering strings comprised of lowercase letters and digits. The set of characters within string \( P \) is a subset of the set of characters of the key string \( K \).

You are to help the Australian Security Service by writing a program to get two strings \( K \) and \( P \) as above, and print the minimum number of block moves from \( K \) to \( P \). Your code will be tested with a sequence of lines. Odd lines are to be used as the key strings \( K \), and even lines to be used as target strings \( P \). The output will consist solely of the minimum number of block moves for each pair. The input will be terminated by a ‘#’ by itself in the place of a \( K \) string.

Assume that each of \( K \) and \( P \) is made up of 1 to 120 characters (\( K \) is allowed to be longer than \( P \)).
SAMPLE INPUT

abaabba
aaabbbabbbaaa
xy0z
zzz0yyy0xxx
#

SAMPLE OUTPUT

6
10

COMMENTS

The first sample is discussed on the first page. Here follows a minimal sequence of block moves for the second sample:

\[
copy(4,1); copy(4,1); copy(4,1); copy(3,1);
copy(2,1); copy(2,1); copy(2,2);
copy(1,1); copy(1,1); copy(1,1)
\]