Insert AB or BA

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	1024 megabytes

You are given two strings S and T, both consisting of the characters `A` and `B`.

You can perform the following two types of operations any number of times (including zero), in any order:

- Insert the string `AB` at any position in S. This operation costs X.
- Insert the string `BA` at any position in S. This operation costs Y.

Note that insertions can be made at the beginning or end of the string as well.

Determine whether it is possible to transform S into T using these operations. If it is possible, output the minimum total cost required to do so.

Input

The input is given in the following format:

S T
X Y

- X and Y are integers.
- S and T consist only of the characters `A` and `B`.
- $1 \leq |S| \leq |T| \leq 8000$.
- $1 \leq X \leq 10^9$.
- $1 \leq Y \leq 10^9$.

Output

If it is possible to transform S into T, output the minimum total cost required on a single line. If it is not possible, output `-1`.

Examples

standard input	standard output
AB ABAABB 5 3	8
AAAAAA AAAAAA 2 3	0
AAAAA BBBBBBB 9982 44353	-1
AAABBABABBBBBBABBABBA AAABABBABABBABBBBBABBBBBAAAAABBABABBAABBA 1 100000	300007

Note

In the first example, $S =$ `AB`. You can transform S into $T =$ `ABAABB` by performing the following operations:

- Insert `BA` between the 1st and 2nd characters of `AB`, resulting in `ABAB`.
- Insert `AB` between the 3rd and 4th characters of `ABAB`, resulting in `ABAABB`.

In this case, the total cost is $3 + 5 = 8$, which is the minimum possible total cost to achieve the transformation.