

GMO

(Croatian Open Competition in Informatics, 2013/14)

A multinational company is asking you to help them genetically modify an apple. In order for the apples to grow faster, to get more of them, to make them bigger and make them look nicer and more symmetrical, the company wants to insert a certain swine gene into the apple's DNA.

Both the apple's DNA and the swine consist of sequences of nucleotides represented by sequences of characters from the set $\{A, C, G, T\}$, each representing a specific nucleotide. The genetic modification requires that the apple's DNA be injected with some nucleotides so that the resulting sequence contains the swine gene (as a subsequence of consecutive). The injection of the various nucleotides has specific costs.

You must help this multinational company in achieving their goal with the lowest possible total cost. As a reward, you get a ton of their apples.

Input

The first line of input contains a sequence of N characters ($1 \leq N \leq 10000$) representing the apple's DNA. The second line of input contains a sequence of M characters ($1 \leq M \leq 10000$) representing the swine gene that we want to insert into the apple's DNA. Both the sequences are comprised only of characters from the set $\{A, C, G, T\}$.

The third line of input contains four integers K_A, K_C, K_G, K_T ($0 \leq K_A, K_C, K_G, K_T \leq 1000$) that are the costs of inserting nucleotides A, C, G, T , respectively.

Output

The first and only line of output must contain the minimal total cost.

Examples

Sample input 1

```
GTA
CAT
5 7 1 3
```

Sample output 1

```
10
```

Limits

Time limit is 3 seconds.

Memory limit is 1024 megabytes.