

B. DZY Loves Strings

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

DZY loves collecting special strings which only contain lowercase letters. For each lowercase letter c DZY knows its value w_c . For each special string $s = s_1s_2...s_{|s|}$ ($|s|$ is the length of the string) he represents its value with a function $f(s)$, where

Now DZY has a string s . He wants to insert k lowercase letters into this string in order to get the largest possible value of the resulting string. Can you help him calculate the largest possible value he could get?

Input

The first line contains a single string s ($1 \leq |s| \leq 10^3$).

The second line contains a single integer k ($0 \leq k \leq 10^3$).

The third line contains twenty-six integers from w_a to w_z . Each such number is non-negative and doesn't exceed 1000.

Output

Print a single integer — the largest possible value of the resulting string DZY could get.

Examples

input
abc 3 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
output
41

Note

In the test sample DZY can obtain "abcbbc", $value = 1 \cdot 1 + 2 \cdot 2 + 3 \cdot 2 + 4 \cdot 2 + 5 \cdot 2 + 6 \cdot 2 = 41$.