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 $s = s_1 s_2 \ldots s_{|s|}$ ($|s|$ is the length of the string) he represents its value with a function $f(s)$, where

$$f(s) = \sum_{i=1}^{|s|} (w_{s_i} \cdot i).$$

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 ($1 \le |s| \le 10^3$).

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

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	Copy
abc 3 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	

output	Copy
41	

Note

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