2004 Canadian Computing Competition, Stage 2
Day 1, Question 1

Input file: `scribble.in` or standard input
Output file: `scribble.out` or standard output
Source file: `n:\scribble\scribble.___`

Scribble

Nixed, he placed the flong into the calathi halfway through the yuga.

Huh?

Believe it or not, the above sentence is actually a valid English sentence. It also has two other features: it looks like spam, and the words are very valuable.

Valuable, you say? (For some reason, you are doing lots of talking to yourself today).

Yes, valuable, if you are playing Scribble. In the standard game of Scribble, calathi (which means "a vase-shaped basket represented in Greek painting and sculpture") is worth 72 points, nixed (meaning "refused") is worth 26 points, flong (which is "a compressed mass of paper sheets, forming a matrix or mold for stereotype plates") is worth 18 points, and yuga which is "any one of the four ages, Krita, or Satya, Treta, Dwapara, and Kali, into which the Hindus divide the duration or existence of the world" is worth 33 points.

Specifically, as you may know, each letter in Scribble is worth a given number of points. The goal is get the most points with a given set of letters.

For this question, we will modify the game slightly. Suppose you have 7 tiles/letters and you have scores for each letter (where the score s_α for each letter α satisfies $0 < s_\alpha \leq 26$), and also you have a dictionary of valid words that you can consult before you play (this is different than the "normal" Scribble play). Your task is the find the highest scoring word.

Input description

You are given a number k ($1 \leq k \leq 7$) on the first line of input. On the next k lines, you will be given triples α s_α r_α, where α is a letter, s_α is the score for that letter, and r_α is the number of times that letter occurs as a tile. You can assume that

$$\sum_\alpha r_\alpha = 7.$$

For example, the triple "a 7 2" means you have two tiles marked a and each is worth 7 points. On the next (the $k+2$nd) line, there is the number N ($0 < N < 100000$). On each of the next N lines, there is a word (you can assume the length of each word is at least one).

Output Description

The output one line long, containing one integer, which is the maximum score. That is, the maximum number of points that can be attained by using the tiles to form one complete word. If no word can be formed, the maximum number of points is zero.

Sample Input

```
4
a 1 1
b 4 1
c 2 1
d 10 4
3
ab
bc
c
```

Sample Output

```
6
```

QOJ adaptation notes

The original official 2004 Stage 2 statement pages precede this note unchanged. Standard input and standard output are used.

Historical per-test point weights were not recovered. For this QOJ reconstruction, each original input file is an independent subtask with equal weight, totaling 25 points. Weights are rounded to six decimals, with the final subtask adjusted to retain the exact total.