Word search puzzle   P87801_en
Examen final d'Informàtica, FME (2014-01-14)

Consider an $r \times c$ board where each cell has a letter and a number that indicates the value of that cell. Given several words w, compute the maximum number of points achievable by placing w horizontally (to the right) or vertically (down), so that all the letters match those of the board.

Input

Input consists of several cases, each with the dimensions r and c, followed by r rows with c lowercase letters each, followed by r rows with c natural numbers each. Then comes a number t followed by t nonempty words made up of lowercase letters. You can assume that r and c are between 1 and 100, that the value of each cell is between 0 and 10^6, and that the given words do not have more than 100 letters.

Output

For each word of each case, print the maximum possible score placing the word horizontally or vertically. If the word cannot be found, print "no".

Sample input

```
3 4
a b c a
b c a e
c a b d
10 20 30 40
50 60 70 80
15 25 35 45
3
bca
cabb
a

1 1
z
1000000
2
y
z
```

Sample output

```
180
no
70
no
1000000
```

Problem information

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