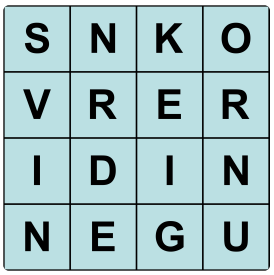
Problem H
Hidden Words

Problem ID: hiddenwords
CPU Time limit: 3 seconds
Memory limit: 1024 MB

Author: Amar Topalovic
Source: Bergen Open 2018

Ingrid is solving the Saturday newspaper *Hidden Words in a Grid* -puzzle, but is finding it a bit tedious to do by hand. Luckily Ingrid knows how to program, and has written a neat image recognition routine that converts a picture of the puzzle into a nice text-based format. However, she is struggling with writing the program that actually solves the puzzle – can you help her out?



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A word is contained within a h by w grid if the word can be constructed by starting in a cell in the grid and walking from there to neighboring unvisited cells. A cell neighbors another cell if it is adjacent, not including diagonal movement. Given such a grid and a list of words, decide how many of the words in the list are contained in the grid.

Input

The first line consists of two integers h and w ($1 \leq h, w \leq 10$), the height and width of the grid. Then h lines follow, each containing a string of length w consisting exclusively of uppercase letters describing one row of the grid. Then follows a line with a single integer n ($1 \leq n \leq 100\,000$), indicating the number of words Ingrid is looking for. Finally the n words follow, each on a separate line. None of these words are longer than 10 characters.

Output

The output consists of a single number, the number of words underneath the grid that are contained in the grid.

Sample Input 1

```
4 4
SNKO
VRER
IDIN
NEGU
3
KORN
NEDI
DER
```

Sample Output 1

```
2
```