

Mirko got a summer internship in a big IT company. This company builds a large database consisting of N rows and M columns.

On his first day, Mirko received a total of Q queries. Each query consists of M numbers. However, some numbers got lost during transition, so they are denoted with -1 . Mirko wants to know how many rows of the database correspond to the query, i.e., how many rows of the database have identical numbers as the query, excluding -1 .

For example, if the query is in the form of **-1 3 2**, then we need to count the rows of the database that have **any number** in the **first** column, have **the number 3** in the **second** column, and have **the number 2** in the **third** column.

Since he just started with his internship, Mirko needs your help. Help him and answer the queries!

INPUT

The first line of input contains N ($1 \leq N \leq 10^3$) and M ($1 \leq M \leq 10^3$), the size of the database. Each of the following N lines contains M numbers A_{ij} ($1 \leq A_{ij} \leq 10^6$), the content of the database.

The following line contains Q ($1 \leq Q \leq 50$), the number of queries.

Each of the following Q lines contains M numbers B_{ij} ($B_{ij} = -1$ or $1 \leq B_{ij} \leq 10^6$), the description of the i^{th} query.

OUTPUT

The output must contain Q lines, each line containing X , the answer to the i^{th} query from the task.

SAMPLE TESTS

input

```
4 3
1 5 2
2 3 4
4 3 2
5 4 6
3
-1 -1 2
-1 3 2
-1 -1 -1
```

output

```
2
```

input

```
3 8
6 5 97 99 82 50 95 1
85 62 11 64 94 84 88 19
43 99 11 64 94 84 31 19
3
-1 -1 11 64 94 84 -1 19
-1 -1 -1 99 -1 -1 -1 1
95 -1 -1 -1 -1 80 -1 -1
```

output

```
2
```

1	1
4	0

Clarification of the first example:

The first query asks how many rows have the number 2 in the third column. These are rows number 1 (1 5 2) and number 3 (4 3 2).

The second query asks how many rows have the numbers 3 and 2 in the second and third column. This is only row number 3 (4 3 2).

The third query asks how many rows are there in total, and the answer is obviously 4.