

Matrix Problem

Yesterday Lili got homework to do matrix multiplication, but because Lili was sick she wasn't sure of the answer. As a friend of Lili, you are asked to calculate the answers to the matrix multiplication given by Lili!

Format Input

The first line contains T, the number of test cases.

For each test case:

The first line will consist of two integers A, B, the size of the matrix X followed by A line, the number Xij, the value of X on i-th row and j-th column.

The next line contains P and Q, the size of the matrix Y, followed by P line each consists of Q number, the value of Yij, the value of Y on i-th row and j-th column.

It is guaranteed that *B* identic with *P*.

Format Output

Output "Case #X:" for each test case, where X is the case number. Following in the next line, the result of the matrix multiplication.

Constraints

$$1 \le T \le 10$$

 $1 \le A, B \le 50$
 $1 \le P, Q \le 50$
 $B = P$
 $-10^8 \le Xij, Yij \le 10^8$

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Sample Input	Sample Output
2	Case #1:
2 2	2 4
2 1	1 7
1 3	Case #2:
2 2	0
1 1	
0 2	
1 3	
3 -1 4	
3 1	
-2	
6	
6 3	

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