

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 X_{ij} , 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 Y_{ij} , 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

$$1 \leq T \leq 10$$

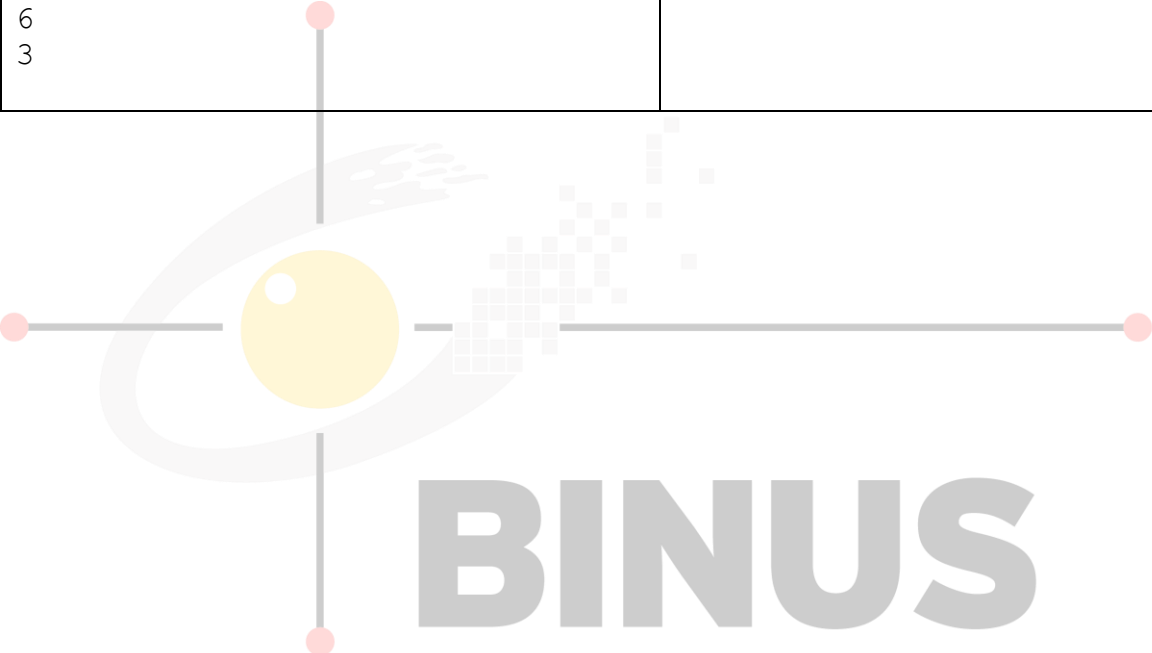
$$1 \leq A, B \leq 50$$

$$1 \leq P, Q \leq 50$$

$$B = P$$

$$-10^8 \leq X_{ij}, Y_{ij} \leq 10^8$$

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



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