Problem M
Web Delivery

Gagamboy, the Philippines' local Spider-Man[3], has a small issue. He's out of web fluid!

Gagamboy needs 1kg each of r different chemicals, labeled 1 to r, in order to synthesize his web fluid. He's too busy fighting crime in Metro Manila to buy these chemicals in person, so he plans to just order them online. The e-commerce app that Gagamboy is using has c sellers, labeled 1 to c, who cater to chemistry hobbyists.

All r chemicals he needs are stocked by all c sellers, although possibly at different prices. These prices can be encoded in a cost matrix A, where $a_{i,j}$ corresponds to the price of 1kg of chemical i if bought from seller j.

Also, for each seller, if Gagamboy orders *any* nonzero number of chemicals from that seller, he must also pay a flat *delivery fee* to have a box containing all those chemicals from that seller shipped to his house. The delivery fees are given in a vector d, where d_j is the delivery fee if *any* chemicals are bought from seller j.

Gagamboy wants to emphasize that this is a *flat* delivery fee. Regardless of how many chemicals you ordered from some seller j (could be one, or two, or all of them, etc.), the delivery fee for that seller will still always be just d_j.

Given A and d, determine the minimum cost for Gagamboy to purchase at least 1kg of each of the r types of chemicals. There will be T independent test cases.

Input Format

The first line of input contains a single integer T, the number of test cases. The descriptions of the T test cases follow.

The first line of each test case contains the two space-separated integers r and c.

Then, r lines follow, each containing c space-separated integers. The value in the ith line from the top and the jth column from the left is $a_{i,j}$.

Finally, one last line follows, containing the c space-separated integers $d_1, d_2, \ldots, d_c$.

Output Format

Output a line containing a single integer, the minimum possible total cost.

Constraints

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$1 \leq T \leq 10$
$1 \leq r, c$
$r \times c \leq 250$
$1 \leq a_{i,j} \leq 10^{15}$ for each (i, j).
$1 \leq d_j \leq 10^{15}$ for each j.

[3]TL note: *gagamba* is Tagalog for "spider".

Sample I/O

Input	Output
2 3 5 1 3 5 7 9 5 7 9 1 3 9 1 3 5 7 4 3 2 3 4 4 3 1 2 4 2 3 1 4 1 2 3 2 1 2 4 4	11 11

Explanation

In the first test case, here is an optimal solution.

- Buy chemicals 1 and 3 from seller 2. The prices are $a_{1,2} = 3$ and $a_{3,2} = 1$. The delivery fee is $d_2 = 3$.
- Buy chemical 2 from seller 4. The price is $a_{2,4} = 1$. The delivery fee is $d_4 = 3$.

In total, we spent $((3 + 1) + 3) + ((1) + 3) = 11$.