

Problem G. Red and Blue

Time limit 2000 ms

Mem limit 524288 kB

Monocarp had a sequence a consisting of $n + m$ integers a_1, a_2, \dots, a_{n+m} . He painted the elements into two colors, red and blue; n elements were painted red, all other m elements were painted blue.

After painting the elements, he has written two sequences r_1, r_2, \dots, r_n and b_1, b_2, \dots, b_m . The sequence r consisted of all red elements of a **in the order they appeared in a** ; similarly, the sequence b consisted of all blue elements of a **in the order they appeared in a as well**.

Unfortunately, the original sequence was lost, and Monocarp only has the sequences r and b . He wants to restore the original sequence. In case there are multiple ways to restore it, he wants to choose a way to restore that maximizes the value of

$$f(a) = \max(0, a_1, (a_1 + a_2), (a_1 + a_2 + a_3), \dots, (a_1 + a_2 + a_3 + \dots + a_{n+m}))$$

Help Monocarp to calculate the maximum possible value of $f(a)$.

Input

The first line contains one integer t ($1 \leq t \leq 1000$) — the number of test cases. Then the test cases follow. Each test case consists of four lines.

The first line of each test case contains one integer n ($1 \leq n \leq 100$).

The second line contains n integers r_1, r_2, \dots, r_n ($-100 \leq r_i \leq 100$).

The third line contains one integer m ($1 \leq m \leq 100$).

The fourth line contains m integers b_1, b_2, \dots, b_m ($-100 \leq b_i \leq 100$).

Output

For each test case, print one integer — the maximum possible value of $f(a)$.

Examples

Input	Output
4	13
4	13
6 -5 7 -3	0
3	0
2 3 -4	
2	
1 1	
4	
10 -3 2 2	
5	
-1 -2 -3 -4 -5	
5	
-1 -2 -3 -4 -5	
1	
0	
1	
0	

Note

In the explanations for the sample test cases, red elements are marked as **bold**.

In the first test case, one of the possible sequences a is $[\mathbf{6}, 2, -\mathbf{5}, 3, \mathbf{7}, -\mathbf{3}, -4]$.

In the second test case, one of the possible sequences a is $[10, \mathbf{1}, -3, \mathbf{1}, 2, 2]$.

In the third test case, one of the possible sequences a is $[-\mathbf{1}, -1, -2, -3, -\mathbf{2}, -4, -5, -\mathbf{3}, -\mathbf{4}, -\mathbf{5}]$.

In the fourth test case, one of the possible sequences a is $[0, \mathbf{0}]$.