Sheldon's OCD

Sheldon Cooper is doing his quarterly re-arranging of the book shelf. The shelf has 3 columns of books. Each book has an integral thickness. Height of a column is the sum of the thicknesses of all the books in that column. Initially, these 3 columns may have different heights.

Since Sheldon suffers from OCD, he wants to make the heights of all three columns equal. For this, he can remove the topmost book from any column any number of times. Also, he wants to ensure that heights of the columns finally is maximum possible. Sheldon is very smart, so he did it quickly. Can you do the same?

Input

First line of the input contains T, number of testcases. Each testcase contains 3 lines. Each line starts with an integer $n[i]$, denoting the number of books in the ith column. After that, $n[i]$ integers follow, denoting the $h[i][j]$, thicknesses of the books from bottom to top.

Output

For each testcase, output a single integer denoting the final height of the columns, followed by a new line.

Constraints

$1 <= T <= 10$
$1 <= n[i] <= 10^5$
$1 <= h[i][j] <= 10^3$

Sample Input

1
3 1 2 4

2 3 5
4 2 1 1 1

Sample Output

3