

ABC Array Game

Time Limit

Memory Limit

1 second ([See Below](#))

512 MB

Description

Three children named Alice, Bob, and Chris like to play games with integer arrays.

First, they pick an integer array V of length n (let $V[i]$ be the i -th element where $i = 1, 2, \dots, n$). For indices i, j with $1 \leq i \leq j \leq n$, let $V[i, j]$ be the subarray of V containing $(j-i+1)$ elements from $V[i]$ to $V[j]$.

Next, they choose three integers a, b , and c which will be used as the lengths of subarrays that the three children will pick. Alice chooses a subarray of V of length a (call the subarray A), Bob a subarray of length b (call the subarray B), and Chris a subarray of length c (call the subarray C). These subarrays should NOT contain any common element (that is, subarrays cannot be overlapping).

For instance, let $V = [2, 0, -2, -2]$ and $a = 2, b = 1, c = 1$. Then, it is allowed for the children to choose $A = V[1, 2], B = V[3, 3], C = V[4, 4]$, but $A = V[1, 2], B = V[2, 2], C = V[1, 1]$ would not be allowed (in the latter case, A & B share $V[2]$ and A & C share $V[1]$).

The three children then, respectively, add up the elements in their array -- let the totals be S_A, S_B, S_C , and they multiply these three numbers to obtain the final score. That is, $S_A \times S_B \times S_C$ is their final score.

In the previous example, if the children picked $A = V[1, 2], B = V[3, 3], C = V[4, 4]$, then $S_A = 2+0 = 2, S_B = -2, S_C = -2$ and thus $S_A \times S_B \times S_C = 8$. If they

picked $A = V[1, 2]$, $B = V[4, 4]$, $C = V[3, 3]$, the final score would be the same. Yet if they picked $A = V[3, 4]$, $B = V[1, 1]$, $C = V[2, 2]$, then $S_A = -4$, $S_B = 2$, $S_C = 0$ and thus the final score would be 0.

In this example, the largest score they can obtain is 8.

Given V , n , a , b , and c , compute the largest score the children can obtain in this game.

Input

The first line of the input will contain T , the number of test cases.

Each test case will be given over two lines. The first line will contain n , a , b , and c , separated by whitespace. The second line will contain the array V 's n elements, separated by whitespace.

Output

Output each test case's answer in each line.

Limit

- $1 \leq T \leq 10$
- $3 \leq n \leq 100,000$
- $1 \leq a, b, c \leq n-2$
- $a + b + c \leq n$
- $-10^6 \leq V[i] \leq 10^6$ ($i = 1, 2, \dots, n$)
- For each subarray of V whose length is equal to a or b or c , the absolute value of the sum of the elements in the said subarray will not exceed 10^6 . Hence, each test case's answer will be between -10^{18} and 10^{18} .

Sample Input 1 Copy

```

5
4 2 1 1
2 0 -2 -2
6 1 1 1
2 -2 -3 3 1 -1
7 2 2 2
0 1 -2 3 -4 5 -6
8 2 2 2
1 -1 1 -1 1 -1 1 -1
3 1 1 1
-1000000 -1000000 -1000000

```

Sample Output 1 Copy

8
18
1
0
-1000000000000000000

Case 1: Discussed in the problem statement.

Case 2: One option is to choose $A = V[2, 2]$, $B = V[3, 3]$, $C = V[4, 4]$.

Case 3: They can choose $A = [1, 2]$, $B = [3, 4]$, $C = [5, 6]$.

Case 4: Every subarray of length 2 has the sum equal to 0.

Case 5: No explanation.

Time Limit

- Java 8: 3 seconds
- Python 3: 2 seconds
- PyPy3: 2 seconds
- Java 8 (OpenJDK): 3 seconds
- Java 11: 3 seconds
- Kotlin (JVM): 3 seconds
- Java 15: 3 seconds