

Problem D. Two Arrays

Time limit: 2 seconds
Memory limit: 512 megabytes

Let the maximum in the array d be denoted as $\max(d)$ and the minimum as $\min(d)$.

Two arrays a and b of length n are given. In one operation, you can choose an index $1 \leq i \leq n$ and simultaneously increase the elements a_i and b_i by one: $a_i = a_i + 1$, $b_i = b_i + 1$. It is necessary to use these operations to achieve the simultaneous fulfillment of two conditions:

- $\max(a) - \min(a) \leq x$,
- $\max(b) - \min(b) \leq y$.

Determine the minimum number of operations required to achieve the simultaneous fulfillment of the specified conditions, or find out that it is impossible.

Input

Each test consists of several test cases. The first line contains one integer t — the number of test cases ($1 \leq t \leq 10^5$). The description of the test cases follows.

The first line of each test case contains three integers: n, x, y ($1 \leq n \leq 10^5$, $0 \leq x, y \leq 10^9$).

The second line of each test case contains n integers a_1, a_2, \dots, a_n — the elements of array a ($-10^9 \leq a_i \leq 10^9$).

The third line of each test case contains n integers b_1, b_2, \dots, b_n — the elements of array b ($-10^9 \leq b_i \leq 10^9$).

It is guaranteed that the sum of n across all test cases does not exceed 10^5 .

Output

For each test case, output one integer — the minimum possible number of operations required to satisfy both conditions. If it is impossible to satisfy both conditions simultaneously, output -1 .

Example

standard input	standard output
5	1
4 2 3	3
-1 -2 -3 -4	3
-1 -2 -3 -4	-1
3 3 2	440
1 6 4	
1 4 1	
4 0 3	
0 2 1 2	
0 2 3 3	
5 2 1	
-1 0 1 2 3	
2 2 2 2 2	
3 66 77	
235 -111 9	
100 -200 -100	