M. Minimize the error

time limit per test: 1 second

memory limit per test: 256 megabytes

You are given two arrays A and B, each of size n. The error, E, between these two arrays is defined $E = \sum_{i=1}^{n} (a_i - b_i)^2$. You have to perform **exactly** k_1 operations on array A and **exactly** k_2 operations on array B. In one operation, you have to choose one element of the array and increase or decrease it by 1.

Output the minimum possible value of error after k_1 operations on array A and k_2 operations on array B have been performed.

Input

The first line contains three space-separated integers n ($1 \le n \le 10^3$), k_1 and k_2 ($0 \le k_1 + k_2 \le 10^3$, k_1 and k_2 are non-negative) — size of arrays and number of operations to perform on A and B respectively.

Second line contains n space separated integers $a_1, a_2, ..., a_n$ ($-10^6 \le a_i \le 10^6$) — array A.

Third line contains n space separated integers $b_1, b_2, ..., b_n$ ($-10^6 \le b_i \le 10^6$)— array B.

Output

Output a single integer — the minimum possible value of $\sum_{i=1}^{n} (a_i - b_i)^2$ after doing exactly k_1 operations on array A and exactly k_2 operations on array B.

Examples

input Copy

```
2 0 0
1 2
2 3
```

output Copy

```
2
```

input Copy

```
2 1 0
1 2
2 2
```

output Copy

```
0
```

input Copy

```
2 5 7
3 4
14 4
```

output Copy

```
1
```

Note

In the first sample case, we cannot perform any operations on A or B. Therefore the minimum possible error $E = (1 - 2)^2 + (2 - 3)^2 = 2$.

In the second sample case, we are required to perform exactly one operation on A. In order to minimize error, we increment the first element of A by 1. Now, $A = [2, 2]$. The error is now $E = (2 - 2)^2 + (2 - 2)^2 = 0$. This is the minimum possible error obtainable.

In the third sample case, we can increase the first element of A to 8, using the all of the 5 moves available to us. Also, the first element of B can be reduced to 8 using the 6 of the 7 available moves. Now $A = [8, 4]$ and $B = [8, 4]$. The error is now $E = (8 - 8)^2 + (4 - 4)^2 = 0$, but we are still left with 1 move for array B. Increasing the second element of B to 5 using the left move, we get $B = [8, 5]$ and $E = (8 - 8)^2 + (4 - 5)^2 = 1$.

ICPC Assiut University Training - Juniors Phase 1 Sheets-2022

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- Juniors Phase 1 Practice #5 (Bitmask, Bitset, Bits)
- Juniors Phase 1 Practice #4 (Binary search , Two pointers)
- Juniors Phase 1 Practice #3 (STL 2)
- Juniors Phase 1 Practice #2 (STL 1)
- Juniors Phase 1 Practice #1 (Prefix sum , Frequency Array)

Juniors Phase 1 Practice #3 (STL 2)

Finished

Practice

→ About Time Scaling

This contest uses time limits scaling policy (depending on a programming language). The system automatically adjusts time limits by the following multipliers for some languages. Despite scaling (adjustment), the time limit cannot be more than 30 seconds. Read the details by the link.

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
311951152	Mar/23/2025 06:46	Accepted
311950934	Mar/23/2025 06:42	Wrong answer on test 5