Best Sum

You are given two arrays A and B of length **N**. Let S be the set of integers from 1 to **N**. Can you find the maximum possible value of $(A_{i1}+A_{i2}+...+A_{ik})^2+(B_{i1}+B_{i2}+...+B_{ik})^2$ where {i1,i2...ik} is a non-empty subset of S?

Input Format

The first line contains a single integer **T**, denoting the number of test cases.
T testcases follow, each test case given in following format.

```
N
A1 A2 ... AN
B1 B2 ... BN
```

Output Format

For each test case, output the maximum possible value in one line.

Constraints

$1 <= T <= 10$
$1 <= N <= 1000$
$-10^6 <= A_i, B_i <= 10^6$

Sample Input

```
1
2
-1 5
4 -5
```

Sample Output

```
50
```

Explanation

All possible non-empty subsets for N = 2 of S = {1,2} are {1}, {2} and {1,2}. The maximum possible values of the above equation now are

- $(-1)^2 + (4)^2 = 17$

- $(5)^2 + (-5)^2 = 50$

- $(-1 + 5)^2 + (4 - 5)^2 = 17$

hence 50.

Timelimits

Timelimits for this challenge can be seen here