F. Family Photos

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Alice and Bonnie are sisters, but they don't like each other very much. So when some old family photos were found in the attic, they started to argue about who should receive which photos. In the end, they decided that they would take turns picking photos. Alice goes first.

There are n stacks of photos. Each stack contains **exactly two** photos. In each turn, a player may take only a photo from the top of one of the stacks.

Each photo is described by two non-negative integers a and b, indicating that it is worth a units of happiness to Alice and b units of happiness to Bonnie. Values of a and b might differ for different photos.

It's allowed to pass instead of taking a photo. The game ends when all photos are taken or both players pass consecutively.

The players don't act to maximize their own happiness. Instead, each player acts to maximize the amount by which her happiness exceeds her sister's. Assuming both players play optimal, find the difference between Alice's and Bonnie's happiness. That is, if there's a perfectly-played game such that Alice has x happiness and Bonnie has y happiness at the end, you should print $x - y$.

Input

The first line of input contains a single integer n ($1 \le n \le 100\,000$) — the number of two-photo stacks. Then follow n lines, each describing one of the stacks. A stack is described by four space-separated non-negative integers a_1, b_1, a_2 and b_2, each not exceeding 10^9. a_1 and b_1 describe the top photo in the stack, while a_2 and b_2 describe the bottom photo in the stack.

Output

Output a single integer: the difference between Alice's and Bonnie's happiness if both play optimally.

Examples

input
2 12 3 4 7 1 15 9 1
output
1

input
2 5 4 8 8 4 12 14 0
output
4

input
1 0 10 0 10
output
-10