Art Class

Time Limit: 14000/7000 MS (Java/Others) Memory Limit: 524288/524288 K (Java/Others)
Total Submission(s): 0 Accepted Submission(s): 0

Problem Description

This class is on art. Mr. Picasso gives every baby a piece of white drawing paper and let them paint on it.

Baby Volcano is going to color the drawing paper black. For convenience, the drawing paper can be regarded as a Cartesian coordinate system, and initially, all points on it is white.

Baby Volcano plans to paint the drawing paper in n steps. In the ith step, he will color rectangular R_i black, where the lower left corner of R_i is $(l_i, 0)$, the upper right corner of R_i is (r_i, h_i).

Let P_i be the drawing paper after the first i steps, your task is to calculate the perimeter of black area on P_i.

Input

The first line contains a single integer $t(1 \leq t \leq 100)$, the number of testcases.

For each testcase, the first line contains a single integer $n(1 \leq n \leq 2 \times 10^5)$, the number of steps.

Then n lines follow. Each line contains 3 integers $l_i, r_i, h_i(1 \leq l_i, < r_i \leq 10^9, 1 \leq h_i \leq 10^9)$.

The input guarantees that there are no more than 3 testcases with $n > 1000$.

Output

For each testcase, output n lines. Each line contains a single integer, representing the perimeter of black area after the first i steps.

Sample Input

```
1
6
1 2 2
3 4 3
5 6 2
1 4 1
2 6 1
3 7 4
```

Sample Output

```
6
14
20
20
20
22
```

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