

Contest Duration: 2025-12-20(Sat) 23:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20251220T2100&p1=248>) - 2025-12-21(Sun) 00:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20251220T2240&p1=248>) (local time) (100 minutes)

[Back to Home \(/home\)](#)

[Top \(/contests/abc437\)](#)

[Tasks \(/contests/abc437/tasks\)](#)

[Clarifications \(/contests/abc437/clarifications\)](#) [Results ▾](#)

[Standings \(/contests/abc437/standings\)](#)

[Virtual Standings \(/contests/abc437/standings/virtual\)](#) [Editorial \(/contests/abc437/editorial\)](#)

[Discuss \(<https://codeforces.com/blog/entry/149333>\)](#)



## F - Manhattan Christmas Tree 2

[Editorial \(/contests/abc437/tasks/abc437\\_f/editorial\)](#)

/

Time Limit: 3 sec / Memory Limit: 1024 MiB

Score : 500 points

### Problem Statement

There are  $N$  Christmas trees on a two-dimensional plane. The  $i$ -th ( $1 \leq i \leq N$ ) Christmas tree is located at coordinates  $(X_i, Y_i)$ .

You are given  $Q$  queries. Process the queries in order. Each query is one of the following:

- Type 1 : Given in the form `1 i x y`. Change the coordinates of the  $i$ -th Christmas tree to  $(x, y)$ .
- Type 2 : Given in the form `2 L R x y`. Output the Manhattan distance from the coordinates  $(x, y)$  to the farthest Christmas tree among the  $L, L + 1, \dots, R$ -th Christmas trees.

Here, the Manhattan distance between coordinates  $(x_1, y_1)$  and coordinates  $(x_2, y_2)$  is defined as  $|x_1 - x_2| + |y_1 - y_2|$ .

### Constraints

- $1 \leq N, Q \leq 2 \times 10^5$
- $-10^9 \leq X_i, Y_i \leq 10^9$
- $1 \leq i \leq N$
- $1 \leq L \leq R \leq N$

2026-01-02 (Fri)  
05:35:09 +11:00

- $-10^9 \leq x, y \leq 10^9$
  - All input values are integers.
- 

## Input

The input is given from Standard Input in the following format:

```
N Q
X1 Y1
X2 Y2
⋮
XN YN
query1
query2
⋮
queryQ
```

Here, the  $i$ -th query  $\text{query}_i$  is given in one of the following formats:

```
1 i x y
```

```
2 L R x y
```

## Output

Output the answers to the queries, separated by newlines, according to the instructions in the problem statement.

---

### Sample Input 1

Copy

```
3 4
-1 -1
1 2
-2 1
2 1 2 0 0
2 1 3 -1 2
1 1 0 1
2 1 3 -1 2
```

Copy

### Sample Output 1

Copy

2026-01-02 (Fri)  
05:35:09 +11:00

```
3  
3  
2
```

Copy

Initially, the 1st, 2nd, 3rd Christmas trees are located at coordinates  $(-1, -1)$ ,  $(1, 2)$ ,  $(-2, 1)$ , respectively.

Each query is processed as follows:

- The Manhattan distances from the 1st and 2nd Christmas trees to coordinates  $(0, 0)$  are 2 and 3, respectively. Thus, output 3, which is the maximum value among 2, 3.
- The Manhattan distances from the 1st, 2nd, 3rd Christmas trees to coordinates  $(-1, 2)$  are 3, 2, 2, respectively. Thus, output 3, which is the maximum value among 3, 2, 2.
- Change the coordinates of the 1st Christmas tree to  $(0, 1)$ . The coordinates of the 1st, 2nd, 3rd Christmas trees become  $(0, 1)$ ,  $(1, 2)$ ,  $(-2, 1)$ , respectively.
- The Manhattan distances from the 1st, 2nd, 3rd Christmas trees to coordinates  $(-1, 2)$  are 2, 2, 2, respectively. Thus, output 2, which is the maximum value among 2, 2, 2.

## Sample Input 2

Copy

```
5 7  
-9 5  
-2 -9  
10 -6  
9 8  
2 9  
1 3 -9 -6  
2 3 4 2 7  
1 4 -2 -10  
2 1 2 0 -10  
2 3 4 10 -9  
2 3 4 8 7  
2 5 5 0 2
```

Copy

## Sample Output 2

Copy

```
24  
24  
22  
30  
9
```

Copy

#url=https%3A%2F%2Fatcoder.jp%2Fcontests%2Fabc437%2Ftasks%2Fabc437\_f%3Flang%3Den&title=F%20-  
Tree%202)

---

[Rule \(/contests/abc437/rules\)](#) [Glossary \(/contests/abc437/glossary\)](#)

[Terms of service \(/tos\)](#) [Privacy Policy \(/privacy\)](#) [Information Protection Policy \(/personal\)](#) [Company \(/company\)](#)  
[FAQ \(/faq\)](#) [Contact \(/contact\)](#)

Copyright Since 2012 ©AtCoder Inc. (<http://atcoder.co.jp>) All rights reserved.