

Contest Duration: 2025-12-06(Sat) 23:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20251206T2100&p1=248>) - 2025-12-07(Sun) 00:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20251206T2240&p1=248>) (local time) (100 minutes)

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## E - Cover query

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Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 450 points

### Problem Statement

There are  $N$  cells arranged in a row from left to right.

The  $i$ -th cell from the left ( $1 \leq i \leq N$ ) is called cell  $i$ .

Initially, all cells are painted white.

Process  $Q$  queries in order.

The  $i$ -th query ( $1 \leq i \leq Q$ ) is as follows:

Two integers  $(L_i, R_i)$  ( $1 \leq L_i \leq R_i \leq N$ ) are given.

Paint all cells  $L_i, L_i + 1, \dots, R_i$  black.

Here, cells that were painted white are now painted black, and cells that were painted black remain as is.

After that, find the number of cells (among the  $N$  cells) that are painted white.

### Constraints

- $1 \leq N \leq 10^9$
- $1 \leq Q \leq 2 \times 10^5$
- $1 \leq L_i \leq R_i \leq N$
- All input values are integers.

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## Input

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

```
N Q
L1 R1
L2 R2
⋮
LQ RQ
```

## Output

Output  $Q$  lines.

The  $i$ -th line ( $1 \leq i \leq Q$ ) should contain the answer to the  $i$ -th query.

### Sample Input 1

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```
10 5
3 5
8 9
5 8
2 9
6 6
```

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### Sample Output 1

[Copy](#)

```
7
5
3
2
2
```

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Initially, 10 cells are arranged in a row from left to right.

- The first query paints cells 3, 4, 5 black. After the operation, the cells painted white are cells 1, 2, 6, 7, 8, 9, 10, which is 7 cells.
- The second query paints cells 8, 9 black. After the operation, the cells painted white are 1, 2, 6, 7, 10, which is 5 cells.
- The third query paints cells 5, 6, 7, 8 black. After the operation, the cells painted white are 1, 2, 10, which is 3 cells.
- The fourth query paints cells 2, 3, ..., 9 black. After the operation, the cells painted white are 1, 10, which is 2 cells.

- The fifth query paints cell 6 black. After the operation, the cells painted white are cells 1, 10, which is 2 cells.

Thus, output 7, 5, 3, 2, 2 in this order on each line.

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## Sample Input 2

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```
1000000000 1  
1 500000000
```

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## Sample Output 2

[Copy](#)

```
500000000
```

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'#telegram)

'url=https%3A%2F%2Fatcoder.jp%2Fcontests%2Fabc435%2Ftasks%2Fabc435\_e%3Flang%3Den&title=E%20-

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