U. Minimum subarray

time limit per test: 1 second
memory limit per test: 256 megabytes

A special grid of size $N*N$ is a grid that any column i $(1 \leq i \leq N)$ has l and r where all the elements in it are 1 except the elements in the rows from l to r are 0, for Example:

1	1	1	1	1
1	0	1	0	1
0	0	0	0	0
0	1	0	1	0
1	1	1	1	1

Given a special grid A of size $N*N$ and you have to print the minimum sum you can get if you take a subgrid from A of size $H*N$.

Input

The first line of input contains one integer T $(1 \leq T \leq 10^6)$ the number of test cases.

The first line of each test case contains two integers N,H $(1 \leq H \leq N \leq 10^6)$.

Then N lines, where the i_{th} line contains two integers l,r $(1 \leq l \leq r \leq N)$ of the i_{th} column.

1 ≤ sum of N over all test cases $\leq 10^6$

Output

Print T lines, where the i_{th} line contains one integer number x, where x is the answer of the i_{th} test case

Example

input Copy

```
2
4 3
2 3
2 3
2 3
5 2
3 4
2 3
3 4
2 3
3 4
```

output Copy

```
4
2
```

Note

The second test case:

The grid is:

1 1 1 1 1

1 0 1 0 1

0 0 0 0 0

0 1 0 1 0

1 1 1 1 1

ICPC Assiut University Training - Juniors Phase 1 Sheets-2022

Public

Participant

→ Group Contests

- Juniors Phase 1 Practice #5 (Bitmask, Bitset, Bits)
- Juniors Phase 1 Practice #4 (Binary search , Two pointers)
- Juniors Phase 1 Practice #3 (STL 2)
- Juniors Phase 1 Practice #2 (STL 1)
- Juniors Phase 1 Practice #1 (Prefix sum , Frequency Array)

Juniors Phase 1 Practice #1 (Prefix sum , Frequency Array)

Finished

Practice

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
305412377	Feb/10/2025 08:53	Accepted
305410591	Feb/10/2025 08:39	Accepted
305404313	Feb/10/2025 07:41	Time limit exceeded on test 2

Ther is three grid are:

- The first subgrid is:
  1 1 1 1 1

  1 0 1 0 1

  The sum = 8
- The second subgrid is :
  1 0 1 0 1

  0 0 0 0 0

  The sum = 3
- The third subgrid is:
  0 0 0 0 0

  0 1 0 1 0

  The sum = 2
- The Fourth subgrid is:
  0 1 0 1 0

  1 1 1 1 1

  The sum = 7

So the answer is: 2
