



PRACTICE & LEARN ([HTTPS://WWW.CODECHEF.COM/#](https://www.codechef.com/#))

COMPETE (/CONTESTS)

DISCUSS ([HTTP://DISCUSS.CODECHEF.COM/](http://discuss.codechef.com/))

OUR INITIATIVES ([HTTPS://WWW.CODECHEF.COM/MONTHLY-PROGRAMMING-CONTESTS?ITM_CAMPAIGN=NAVMENU](https://www.codechef.com/monthly-programming-contests?itm_campaign=navmenu))

ASSOCIATE WITH US ([HTTPS://WWW.CODECHEF.COM/CORPORATES](https://www.codechef.com/corporates))

MORE ([HTTPS://WWW.CODECHEF.COM/RATINGS/ALL](https://www.codechef.com/ratings/all))

[Home \(/\)](#) » [Compete \(/contests/\)](#) » [July Challenge 2020 Division 2 \(/JULY20B?order=desc&sortBy=successful_submissions\)](#) » Missing a Point

Missing a Point

Problem Code: **PTMSSNG**

Submit (/JULY20B/submit/PTMSSNG)



[Tweet](#)

(<https://twitter.com/jag20>) [Like](#) [Share](#) 68 people like this. Be the first of your friends.

Read problem statements in [Hindi](#)

(<http://www.codechef.com/download/translated/JULY20/hindi/PTMSSNG.pdf>),

Bengali

(<http://www.codechef.com/download/translated/JULY20/bengali/PTMSSNG.pdf>),

Mandarin Chinese

(<http://www.codechef.com/download/translated/JULY20/mandarin/PTMSSNG.pdf>),

Russian

(<http://www.codechef.com/download/translated/JULY20/russian/PTMSSNG.pdf>),

and Vietnamese

(<http://www.codechef.com/download/translated/JULY20/vietnamese/PTMSSNG.pdf>)

as well.

Chef has N axis-parallel rectangles in a 2D Cartesian coordinate system. These rectangles may intersect, but it is guaranteed that all their $4N$ vertices are pairwise distinct.

Unfortunately, Chef lost one vertex, and up until now, none of his fixes have worked (although putting an image of a point on a milk carton might not have been the greatest idea after all...). Therefore, he gave you the task of finding it! You are given the remaining $4N - 1$ points and you should find the missing one.

Input

- The first line of the input contains a single integer T denoting the number of test cases. The description of T test cases follows.
- The first line of each test case contains a single integer N .
- Then, $4N - 1$ lines follow. Each of these lines contains two space-separated integers x and y denoting a vertex (x, y) of some rectangle.

Output

For each test case, print a single line containing two space-separated integers X and Y — the coordinates of the missing point. It can be proved that the missing point can be determined uniquely.

Constraints

- $T \leq 100$
- $1 \leq N \leq 2 \cdot 10^5$
- $|x|, |y| \leq 10^9$
- the sum of N over all test cases does not exceed $2 \cdot 10^5$

My Submissions

(/JULY20B/status/PTMSSNG/jag20)

All Submissions

(/JULY20B/status/PTMSSNG)

Successful Submissions



Subtasks

Subtask #1 (20 points):

- $T = 5$
- $N \leq 20$

Subtask #2 (30 points): $|x|, |y| \leq 10^5$

Subtask #3 (50 points): original constraints

Example Input

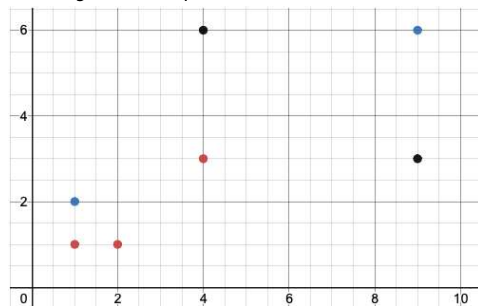
```
1
2
1 1
1 2
4 6
2 1
9 6
9 3
4 3
```

Example Output

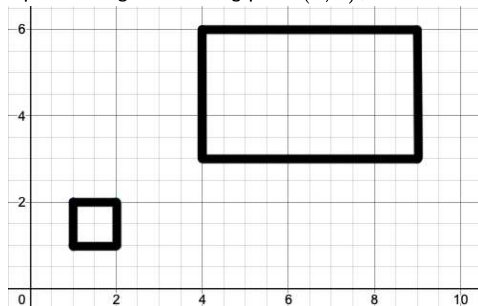
```
2 2
```

Explanation

The original set of points are:



Upon adding the missing point $(2, 2)$, $N = 2$ rectangles can be formed:



Author: 6★ [sanroylozan](/users/sanroylozan/) (/users/sanroylozan/)

Date Added: 9-04-2020

Time Limit: 1 secs

Source Limit: 50000 Bytes

Languages: ADA, ASM, BASH, BF, C, CAML, CLOJ, CLPS, COB, CPP14, CPP17, CS2, D, ERL, FORT, FS, GO, HASK, ICK, ICON, JAVA, JS, kotlin, LISP clisp, LISP sbcl, LUA, NEM, NICE, NODEJS, PAS fpc, PAS gpc, PERL, PERL6, PHP, PIKE, PRLG, PYP3,

PYPY, PYTH, PYTH 3.6, R, RUBY, rust, SCALA, SCM chicken,
SCM guile, SCM qobi, SQL, SQLQ, ST, swift, TCL, TEXT,
WSPC

Submit (/JULY20B/submit/PTMSSNG)

Comments ▶

CodeChef is a non-profit competitive programming community.

[About CodeChef \(/aboutus/\)](/aboutus/) [CEO's Corner \(/ceoscorner/\)](/ceoscorner/) [Contact Us \(/contactus/\)](/contactus/)

The time now is: 09:46:06 PM
Your IP: 45.127.45.66

CodeChef uses SPOJ © by [Sphere Research Labs \(https://www.sphere-research.com\)](https://www.sphere-research.com)

In order to report copyright violations of any kind, send in an email to copyright@codechef.com (<mailto:copyright@codechef.com>)

CodeChef (/) - A Platform for Aspiring Programmers

CodeChef was created as a platform to help programmers make it big in the world of **algorithms**, **computer programming**, and **programming contests**. At CodeChef we work hard to revive the geek in you by hosting a **programming contest** at the start of the month and two smaller programming challenges at the middle and end of the month. We also aim to have training sessions and discussions related to **algorithms**, **binary search**, technicalities like **array size** and the likes. Apart from providing a platform for **programming competitions**, CodeChef also has various algorithm tutorials and forum discussions to help those who are new to the world of **computer programming**.

Practice Section (/problems/easy) - A Place to hone your 'Computer Programming Skills'

Try your hand at one of our many practice problems and submit your solution in the language of your choice. Our **programming contest** judge accepts solutions in over 55+ programming languages. Preparing for coding contests were never this much fun! Receive points, and move up through the CodeChef ranks. Use our practice section to better prepare yourself for the multiple **programming challenges** that take place through-out the month on CodeChef.

Compete (/contests) - Monthly Programming Contests, Cook-off and Lunchtime

Here is where you can show off your **computer programming skills**. Take part in our 10 days long monthly coding contest and the shorter format Cook-off and Lunchtime **coding contests**. Put yourself up for recognition and win great prizes. Our **programming contests** have prizes worth up to INR 20,000 (for Indian Community), \$700 (for Global Community) and lots more CodeChef goodies up for grabs.

Programming Tools

[Online IDE \(/ide\)](/ide/)

[Upcoming Coding Contests](#)

[Contests \(/contests/contest\)](/contests/contest/)

[Problem Setting \(/problemsetting\)](/problemsetting/)

[CodeChef Tutorials \(/wiki/tutorials\)](/wiki/tutorials/)

[CodeChef Wiki \(/wiki\)](/wiki/)

Practice Problems

[Easy \(/problems/easy\)](/problems/easy/)

[Medium](#)

[Hard Problems \(/hard\)](/problems/medium/)

[Challenge](#)

[Problems \(/challenge\)](/problems/challenge/)

[Special Problems \(/extcontest\)](/problems/extcontest/)

[FAQ \(/faq\)](/faq/)

Initiatives

[Go for Gold \(/goforgold\)](/goforgold/)

[CodeChef for Schools \(/school\)](/school/)

[Campus Chapters \(/campus_chapter\)](/campus_chapter/)

[CodeChef for Business](#)

[\(/https://business.codechef.com\)](https://business.codechef.com)

Policy

[Terms of Service \(/terms\)](/terms/)

[Privacy Policy \(/privacy-policy\)](/privacy-policy/)

[Refund Policy \(/refund-policy\)](/refund-policy/)

[Code of Conduct \(/codeofconduct\)](/codeofconduct/)

[Bug Bounty Program \(/bug-bounty-program\)](/bug-bounty-program/)