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The Two Dishes

Problem Code: **MAX_DIFF**

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Chef prepared two dishes yesterday. Chef had assigned the **tastiness** T_1 and T_2 to the first and to the second dish respectively. The tastiness of the dishes can be any **integer** between 0 and N (both inclusive).

Unfortunately, Chef has forgotten the values of T_1 and T_2 that he had assigned to the dishes. However, he remembers the sum of the tastiness of both the dishes - denoted by S .

Chef wonders, what can be the maximum possible absolute difference between the tastiness of the two dishes. Can you help the Chef in finding the maximum absolute difference?

It is guaranteed that at least one pair $\{T_1, T_2\}$ exist such that $T_1 + T_2 = S, 0 \leq T_1, T_2 \leq N$.

Input Format

- The first line of input contains a single integer T , denoting the number of testcases. The description of the T testcases follows.
- The first and only line of each test case contains two space-separated integers N, S , denoting the maximum tastiness and the sum of tastiness of the two dishes, respectively.

Output Format

For each testcase, output a single line containing the maximum absolute difference between the tastiness of the two dishes.

Constraints

- $1 \leq T \leq 10^3$
- $1 \leq N \leq 10^5$
- $1 \leq S \leq 2 \cdot 10^5$

Sample Input 1

```
3
3 1
4 4
2 3
```

Sample Output 1

```
1
4
1
```

Submission Ends In

191 13 42 42
Days Hrs Min Sec

My Submissions

(/LP1TO201/status/MAX_DIFF)

All Submissions

(/LP1TO201/status/MAX_DIFF)

Successful Submissions

User	Score	Mem	Lang	Solution
saurabh9...	100.000	5.3M	C++17	View
1★ ashis...	100.000	5.4M	C++14	View
1★ vinay...	100.000	5.2M	C++14	View (/view/...
3★ night...	100.000	5.3M	C++17	View
aliasnam...	100.000	5.3M	C++17	View
2★ t_ad...	100.000	5.3M	C++17	View
sumeet15...	100.000	5.3M	C++17	View
deepali20...	100.000	5.3M	C	View
parul_872...	100.000	9M	PYTH 3.6	View
2★ anan...	100.000	5.3M	C++14	View
premal_2...	100.000	5.1M	C++14	View
dharun_2...	100.000	5.3M	C++17	View

Video Solution New!

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MAX_DIFF | THE TWO DIS...



Test Case 1: The possible pairs of $\{T_1, T_2\}$ are $\{0, 1\}$ and $\{1, 0\}$. Difference in both the cases is 1, hence the maximum possible absolute difference is 1.

Test Case 2: The possible pairs of $\{T_1, T_2\}$ are $\{0, 4\}$, $\{1, 3\}$, $\{2, 2\}$, $\{3, 1\}$ and $\{4, 0\}$. The maximum possible absolute difference is 4.

Test Case 3: The possible pairs of $\{T_1, T_2\}$ are $\{1, 2\}$ and $\{2, 1\}$. Difference in both the cases is 1, and hence the maximum possible absolute difference is 1.

Author: 6★ [lavish315 \(/users/lavish315\)](#)

Date Added: 12-09-2021

Time Limit: 0.5 secs

Source Limit: 50000 Bytes

Languages: CPP14, C, JAVA, PYTH 3.6, CPP17, PYTH, PYP3, CS2, ADA, PYPY, TEXT, PAS fpc, NODEJS, RUBY, PHP, GO, HASK, TCL, PERL, SCALA, LUA, kotlin, BASH, JS, LISP sbcl, rust, PAS gpc, BF, CLOJ, R, D, CAML, FORT, ASM, swift, FS, WSPC, LISP clisp, SQL, SCM guile, PERL6, ERL, CLPS, ICK, NICE, PRLG, ICON, COB, SCM chicken, PIKE, SCM qobi, ST, SQLQ, NEM

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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.

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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.

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