

Qualification Round 2013

[A. Tic-Tac-Toe-Tomek](#)[B. Lawnmower](#)**C. Fair and Square**[D. Treasure](#)[Contest Analysis](#)[Questions asked](#)

## Submissions

## Tic-Tac-Toe-Tomek

10pt	Not attempted <b>19860/21861</b> users correct (91%)
20pt	Not attempted <b>16122/19755</b> users correct (82%)

## Lawnmower

10pt	Not attempted <b>12579/14509</b> users correct (87%)
30pt	Not attempted <b>10569/12136</b> users correct (87%)

## Fair and Square

10pt	Not attempted <b>17569/18199</b> users correct (97%)
35pt	Not attempted <b>6080/15270</b> users correct (40%)
55pt	Not attempted <b>872/3725</b> users correct (23%)

## Treasure

20pt	Not attempted <b>1359/4458</b> users correct (30%)
60pt	Not attempted <b>141/547</b> users correct (26%)

## Top Scores

netkuba	250
pieguy	250
tanakh	250
cgy4ever	250
STEP5	250
Khark	250
Balajiganapathi	250
sohelH	250
krijgertje	250
romanandreev	250

## Problem C. Fair and Square

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the [Quick-Start Guide](#) to get started.

Small input  
10 points

Solve C-small

Large input 1  
35 points

Solve C-large-1

Large input 2  
55 points

Solve C-large-2

## Problem

Little John likes palindromes, and thinks them to be fair (which is a fancy word for nice). A *palindrome* is just an integer that reads the same backwards and forwards - so 6, 11 and 121 are all palindromes, while 10, 12, 223 and 2244 are not (even though 010=10, we don't consider leading zeroes when determining whether a number is a palindrome).

He recently became interested in squares as well, and formed the definition of a *fair and square* number - it is a number that is a palindrome **and** the *square of a palindrome* at the same time. For instance, 1, 9 and 121 are fair and square (being palindromes and squares, respectively, of 1, 3 and 11), while 16, 22 and 676 are **not** fair and square: 16 is not a palindrome, 22 is not a square, and while 676 is a palindrome and a square number, it is the square of 26, which is not a palindrome.

Now he wants to search for bigger fair and square numbers. Your task is, given an interval Little John is searching through, to tell him how many fair and square numbers are there in the interval, so he knows when he has found them all.

## Solving this problem

Usually, Google Code Jam problems have 1 Small input and 1 Large input. This problem has 1 Small input and 2 Large inputs. Once you have solved the Small input, you will be able to download any of the two Large inputs. As usual, you will be able to retry the Small input (with a time penalty), while you will get only one chance at each of the Large inputs.

## Input

The first line of the input gives the number of test cases, **T**. **T** lines follow. Each line contains two integers, **A** and **B** - the endpoints of the interval Little John is looking at.

## Output

For each test case, output one line containing "Case #x: y", where x is the case number (starting from 1) and y is the number of fair and square numbers greater than or equal to **A** and smaller than or equal to **B**.

## Limits

## Small dataset

$1 \leq T \leq 100$ .  
 $1 \leq A \leq B \leq 1000$ .

## First large dataset

$1 \leq T \leq 10000$ .  
 $1 \leq A \leq B \leq 10^{14}$ .

## Second large dataset

$1 \leq T \leq 1000$ .  
 $1 \leq A \leq B \leq 10^{100}$ .

## Sample

Input	Output
3	Case #1: 2
1 4	Case #2: 0
10 120	Case #3: 2
100 1000	

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