

Kickstart Round A 2017

A. Square Counting

[B. Patterns Overlap](#)

[C. Space Cubes](#)

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Submissions

Square Counting

8pt	Correct 1423/2010 users correct (71%)
17pt	Correct 524/1333 users correct (39%)

Patterns Overlap

13pt	Not attempted 394/1100 users correct (36%)
22pt	Not attempted 287/364 users correct (79%)

Space Cubes

14pt	Not attempted 252/395 users correct (64%)
26pt	Not attempted 100/119 users correct (84%)

Top Scores

Doju	100
phirasit	100
jerrymao	100
globalpointer	100
sfiction	100
alecsyde	100
FatalEagle	100
xwchow	100
iskim	100
wifi	100

Problem A. Square Counting

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
8 points

Solve A-small

Large input
17 points

Solve A-large

Problem

Mr. Panda has recently fallen in love with a new game called Square Off, in which players compete to find as many different squares as possible on an evenly spaced rectangular grid of dots. To find a square, a player must identify four dots that form the vertices of a square. Each side of the square must have the same length, of course, but it does not matter what that length is, and the square does not necessarily need to be aligned with the axes of the grid. The player earns one point for every different square found in this way. Two squares are different if and only if their sets of four dots are different.

Mr. Panda has just been given a grid with **R** rows and **C** columns of dots. How many different squares can he find in this grid? Since the number might be very large, please output the answer modulo $10^9 + 7$ (1000000007).

Input

The first line of the input gives the number of test cases, **T**. **T** lines follow. Each line has two integers **R** and **C**: the number of dots in each row and column of the grid, respectively.

Output

For each test case, output one line containing Case #**x**: **y**, where **x** is the test case number (starting from 1) and **y** is the number of different squares can be found in the grid.

Limits

$1 \leq T \leq 100$.

Small dataset

$2 \leq R \leq 1000$.
 $2 \leq C \leq 1000$.

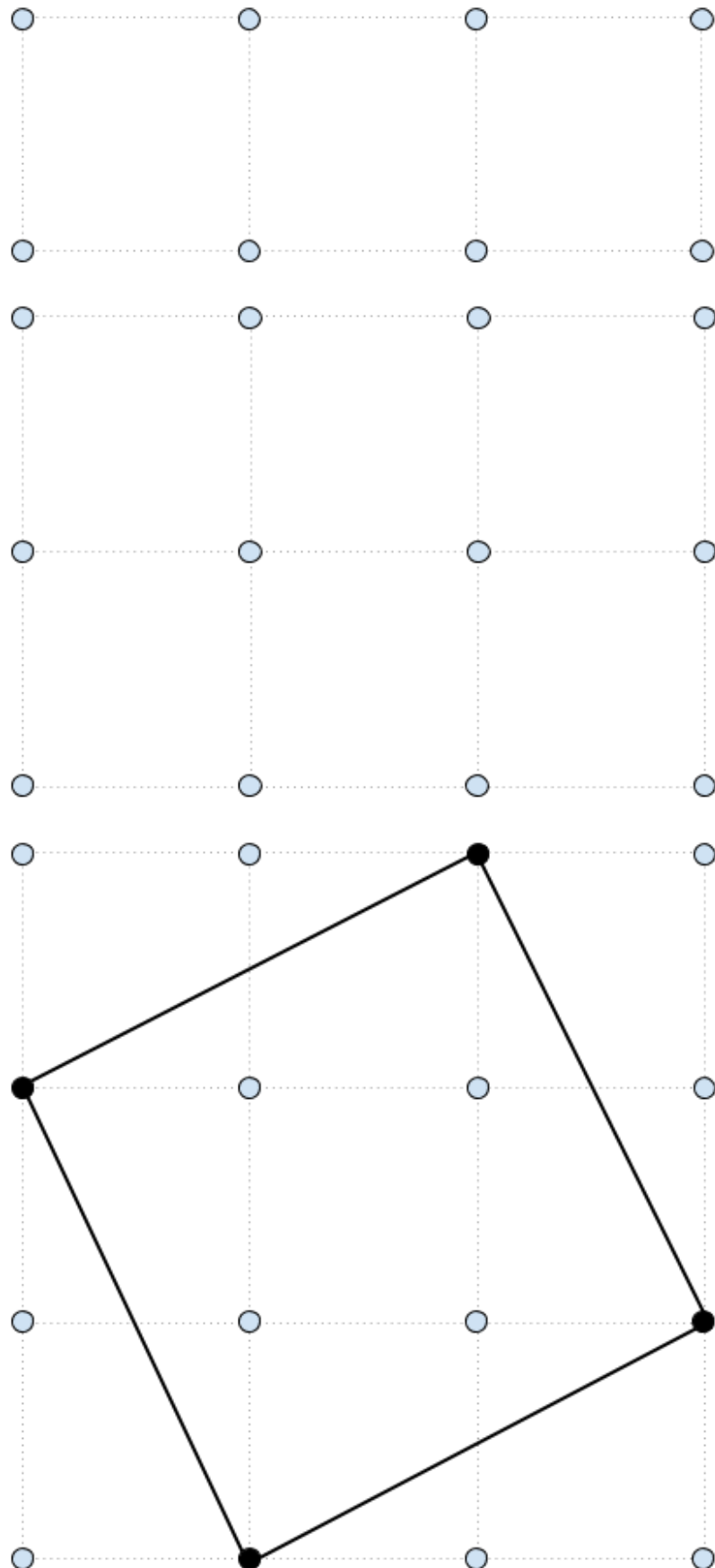
Large dataset

$2 \leq R \leq 10^9$.
 $2 \leq C \leq 10^9$.

Sample

Input	Output
4	Case #1: 3
2 4	Case #2: 10
3 4	Case #3: 20
4 4	Case #4: 624937395
1000 500	

The pictures below illustrate the grids from the three sample cases and a valid square in the third sample case.



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