

Submissions

I/O Error

7pt Not attempted
184/202 users correct (91%)

Dreary Design

8pt Not attempted
98/152 users correct (64%)

10pt Not attempted
59/95 users correct (62%)

20pt Not attempted
25/68 users correct (37%)

Power Levels

9pt Not attempted
37/54 users correct (69%)

16pt Not attempted
28/31 users correct (90%)

Googlander

11pt Not attempted
24/35 users correct (69%)

19pt Not attempted
10/21 users correct (48%)

Top Scores

hiwang123	100
cherry.su	100
LynnKayeC	100
FireJade	100
theWingThing	100
dianaaid	80
Plurgle	70
ghg	70
travm12	70
ppham27	70

Problem B. Dreary Design

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 B-small

Large input 1
10 points

Solve B-large-1

Large input 2
20 points

Solve B-large-2

Problem

One way to represent a color is as a triple of component values (each of which can range from 0 to K , inclusive) representing levels of red, green, and blue. For example, in the color system where $K = 3$, (0, 2, 3) and (0, 3, 2) would be two of the possible distinct colors.

We will consider a color to be *bland* if and only if all pairs of its component values differ by no more than V . For example, in a system with $K = 2$ and $V = 1$, the color (2, 1, 1) is bland, because its red and green components differ by 1, its red and blue components differ by 1, and its green and blue components differ by 0, and none of these differences exceeds 1. But (2, 1, 0) is not bland, because the red and blue components differ by more than 1.

Mr. Turner loves to create gloomy landscape images and wants to design a color system in which there are many bland colors available. Given values for K and V , can you tell him how many distinct bland colors are there?

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 contains two space-separated integers K and V .

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 distinct bland colors.

Limits

$1 \leq T \leq 100$.
 $V \leq K$.

Small dataset

$0 \leq K \leq 255$.
 $0 \leq V \leq 100$.
All answers are guaranteed to fit in a 32-bit signed integer.

First large dataset

$0 \leq K \leq 2,555$.
 $0 \leq V \leq 555$.
All answers are guaranteed to fit in a 32-bit signed integer.

Second large dataset

$0 \leq K \leq 2,000,000,000$.
 $0 \leq V \leq 1,000$.
All answers are guaranteed to fit in a 64-bit signed integer.

Sample

Input	Output
4	Case #1: 8
1 1	Case #2: 2
1 0	Case #3: 256
255 0	Case #4: 1

0 0

In Case #1, there are eight possible colors -- (0, 0, 0), (0, 0, 1), (0, 1, 0), (0, 1, 1), (1, 0, 0), (1, 0, 1), (1, 1, 0), and (1, 1, 1) -- and all of them meet the definition of bland for $\mathbf{V} = 1$.

In Case #2, the same eight colors are possible, but only two of them -- (0, 0, 0) and (1, 1, 1) -- meet the definition of bland for $\mathbf{V} = 0$.

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