

Round 1B 2008

[A. Crop Triangles](#)**B. Number Sets**[C. Mousetrap](#)[Contest Analysis](#)[Questions asked](#) **3**

Submissions

Crop Triangles

5pt	Not attempted 1445/2197 users correct (66%)
10pt	Not attempted 457/1287 users correct (36%)

Number Sets

10pt	Not attempted 777/1351 users correct (58%)
25pt	Not attempted 100/448 users correct (22%)

Mousetrap

15pt	Not attempted 610/862 users correct (71%)
35pt	Not attempted 95/387 users correct (25%)

Top Scores

mystic	100
nika	100
bmerry	100
dgozman	100
ilyaraz	100
misof	100
tourist	100
vlad89	100
lordmonsoon	100
falagar	100

Problem B. Number Sets

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 B-small

Large input
25 points

Solve B-large

Problem

You start with a sequence of consecutive integers. You want to group them into sets.

You are given the interval, and an integer **P**. Initially, each number in the interval is in its own set.

Then you consider each pair of integers in the interval. If the two integers share a prime factor which is at least **P**, then you merge the two sets to which the two integers belong.

How many different sets there will be at the end of this process?

Input

One line containing an integer **C**, the number of test cases in the input file.

For each test case, there will be one line containing three single-space-separated integers **A**, **B**, and **P**. **A** and **B** are the first and last integers in the interval, and **P** is the number as described above.

Output

For each test case, output one line containing the string "Case #X: Y" where X is the number of the test case, starting from 1, and Y is the number of sets.

Limits

Small dataset

 $1 \leq C \leq 10$
 $1 \leq A \leq B \leq 1000$
 $2 \leq P \leq B$

Large dataset

 $1 \leq C \leq 100$
 $1 \leq A \leq B \leq 10^{12}$
 $B \leq A + 1000000$
 $2 \leq P \leq B$

Sample

Input	Output
2	Case #1: 9
10 20 5	Case #2: 7
10 20 3	

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