

# Task: ZAP

## Queries



Stage I. Day 1. Source file `zap.*`

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Available memory: 32 MB.

Byteasar the Cryptographer works on breaking the code of BSA (Byteotian Security Agency). He has already found out that whilst deciphering a message he will have to answer multiple queries of the form „for given integers  $a$ ,  $b$  and  $d$ , find the number of integer pairs  $(x, y)$  satisfying the following conditions:

- $1 \leq x \leq a$ ,
- $1 \leq y \leq b$ ,
- $gcd(x, y) = d$ , where  $gcd(x, y)$  is the greatest common divisor of  $x$  and  $y$ ”.

Byteasar would like to automate his work, so he has asked for your help.

## Task

Write a programme which:

- reads from the standard input a list of queries, which the Byteasar has to give answer to
- calculates answers to the queries,
- writes the outcome to the standard output.

## Input

The first line of the standard input contains one integer  $n$  ( $1 \leq n \leq 50000$ ), denoting the number of queries. The following  $n$  lines contain three integers each:  $a, b$  i  $d$  ( $1 \leq d \leq a, b \leq 50000$ ), separated by single spaces. Each triplet denotes a single query.

## Output

Your programme should write  $n$  lines to the standard output. The  $i^{th}$  line should contain a single integer: the answer to the  $i^{th}$  query from the standard input.

## Example

For the input data:

```
2
4 5 2
6 4 3
```

the correct result is:

```
3
2
```

The pairs satisfying the first query are:  $(2, 2)$ ,  $(2, 4)$  and  $(4, 2)$ , The pairs satisfying the second query are:  $(6, 3)$  and  $(3, 3)$ .