



# Inti Sets

locked

by IEEEExtreme

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In order to motivate his Peruvian students, a teacher includes words in the Quechua language in his math class.

Today, he defined a curious set for a given positive integer  $N$ . He called this set, an *Inti set*, and defined it as the set of all positive integer numbers that have the number  $1$  as their single common positive divisor with number  $N$ .

The math class about Inti sets was amazing. After class, the students try to challenge to teacher. They each ask questions like this: "Could you tell me the sum of all numbers, between  $A$  and  $B$  (inclusive), that are in the Inti set of  $N$ ?"

Since the teacher is tired and he's sure that you are the best in class, he wants to know if you can help him.

## Input Format

The first line of input contains an integer  $Q$ ,  $1 \leq Q \leq 20$ , representing the number of students. Each of the next  $Q$  lines contain three space-separated integers  $N$ ,  $A$  and  $B$ , which represent a query.

## Constraints

$$1 \leq A \leq B \leq N \leq 10^{12}$$

## Output Format

The output is exactly  $Q$  lines, one per student query. For each query you need to find the sum of all numbers between  $A$  and  $B$ , that are in the Inti set of  $N$ , and print the sum modulo 1000000007.

### Sample Input

```
2
12 5 10
5 1 4
```

### Sample Output

```
12
10
```

### Explanation

In the sample input,  $Q = 2$ , so you have to answer two questions:

In the first question  $N = 12$ ,  $A = 5$  and  $B = 10$ . So you have to find the sum of all numbers between 5 and 10, that are in the Inti set of 12.

Inti set ( 12 ) = { 1, 5, 7, 11, 13, ... }

2 and 4 are not in the Inti set (12) because 12 and these numbers are also divisible by 2.

3 and 9 are not in the Inti set (12) because 12 and these numbers are also divisible by 3.

The numbers in the Inti set, which are in the query's range, are 5 and 7, so answer is ( 5 + 7 ) MOD 1000000007 = 12

In the second question, the numbers in the Inti set of 5 between 1 and 4 are: 1, 2, 3, 4; so the answer is ( 1 + 2 + 3 + 4 ) MOD 1000000007 = 10


**Max Score:** 93pts dynamic

**Submissions:** 1591

**Max Score:** 93

**Difficulty:** Hard

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Current Buffer (saved locally, editable)  

C++



```
1 #include <cmath>
2 #include <cstdio>
3 #include <vector>
4 #include <iostream>
5 #include <algorithm>
6 using namespace std;
7
8
9 int main() {
10     /* Enter your code here. Read input from STDIN. Print output to STDOUT */
11     return 0;
12 }
13
```

Line: 1 Col: 1

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Test against custom input

Run Code

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