# Project Euler #136: Singleton difference



This problem is a programming version of Problem 136 from projecteuler.net

The positive integers, x, y, and z, are consecutive terms of an arithmetic progression. Given that n is a positive integer, the equation,  $x^2 - y^2 - z^2 = n$ , has exactly one solution when n = 20:

$$13^2 - 10^2 - 7^2 = 20$$

In fact there are twenty-five values of n below one hundred for which the equation has a unique solution.

How many values of n in the range [L,R] have exactly one solution?

## **Input Format**

The first line of input contains T, the number of test cases.

Each test case consists of one line containing two integers,  $m{L}$  and  $m{R}$ .

### **Constraints**

In the first few test cases (worth 50% of the total points):

$$\begin{aligned} &11 \le T \le 100000 \\ &1 \le L \le R \le 6000000 \end{aligned}$$

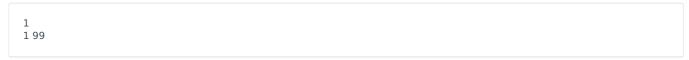
In the last few test cases (worth 50% of the total points):

$$1 \le T \le 10$$
  
 $1 \le L \le R \le 10^{12}$   
 $R - L \le 1000000$ 

### **Output Format**

For each test case, output one line containing a single integer, the answer for that test case.

# **Sample Input**



# **Sample Output**

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