

# 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,  $L$  and  $R$ .

## Constraints

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

$$11 \leq T \leq 100000$$

$$1 \leq L \leq R \leq 6000000$$

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

$$1 \leq T \leq 10$$

$$1 \leq L \leq R \leq 10^{12}$$

$$R - L \leq 1000000$$

## Output Format

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

## Sample Input

```
1
1 99
```

## Sample Output

```
25
```