

Square

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 1024 megabytes

Suppose you have a positive integer x , you can transform it into $x - 1$ or $x + \lfloor \sqrt{2x} + 1.5 \rfloor$ in a single operation.

Find the minimum number of operations required to transform it into another positive integer y .

Input

There multiple test cases in a single test file.

The first line of the input contains a single integer T ($1 \leq T \leq 10^5$), indicating the number of the test cases.

For each test case, the first line of the input contains two integers x_i and y_i ($1 \leq x_i, y_i \leq 10^{18}$).

Output

For each test case, output a single line contains a single integer, indicating the answer.

Example

standard input	standard output
2	4
5 1	3
1 5	