Mathematical Steps

MATHS

150 Points

A person steps through integer points of the number line. The length of a step must be nonnegative and can be one bigger than, equal to, or by one smaller than the length of the previous step.

What is the minimum number of steps in order to get from i to j? The length of the first and the last step must be 1.

Input
Input consists of a line containing N, the number of test cases. N lines follow. For each test case, a line follows with two integers: 0 <= i<= j < 2^31.

Output
For each test case, print a line giving the minimum number of steps to get from i to j.

EXAMPLE:

Input:

```
3
45 48
45 49
45 50
```

Output:

```
3
3
4
```