

On the triangular field shown on the picture, small triangles are numbered from 1 to  $\infty$  (infinity). Traveller wants to go from triangle  $M$  to triangle  $N$ . Traveller can move only through the sides of triangles, not vertices. The number of sides he crosses is called the path length.

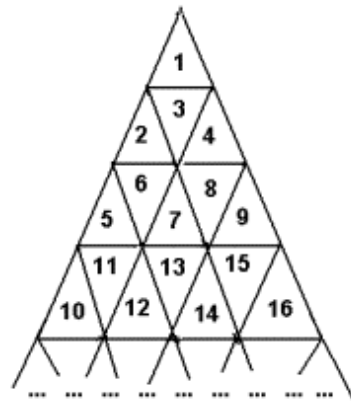
You are to determine the shortest path from  $M$  to  $N$ .

## Input

The first line is the number of test cases, followed by a blank line.

Each test case of the input contains integers  $M$  and  $N$  ( $1 \leq M, N \leq 1000000000$ ), separated by some spaces.

Each test case will be separated by a single line.



## Output

For each test case, your programm should print the length of the shortest path from  $M$  to  $N$ .

Print a blank line between the outputs for two consecutive test cases.

## Sample Input

1

6 12

## Sample Output

3