

10022 Delta-wave

On the triangular field shown on the picture, small triangles are numbered from 1 to ∞ (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.

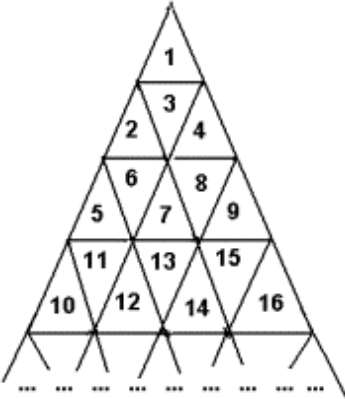
You are to determine the shortest path from M to N .

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 program 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