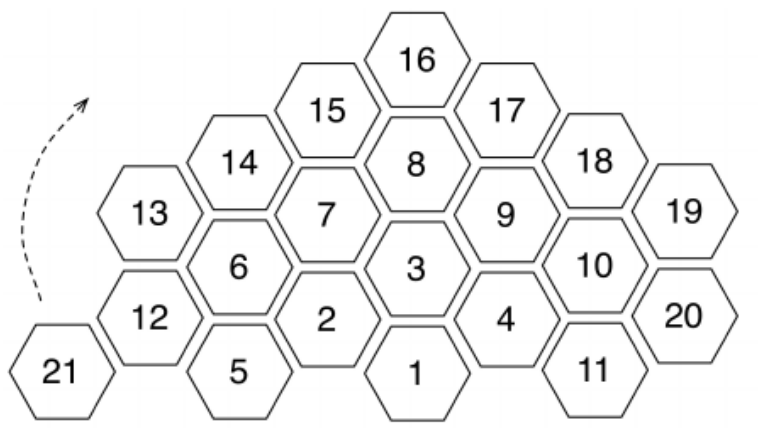


## 7528 Beehive

There is an infinite beehive like the one given in the figure. We consider two cells to be adjacent if and only if they share a side. A path of length  $k$  from cell  $c_0$  to cell  $c_k$  is a sequence of cells  $c_0, c_1, \dots, c_k$  such that  $c_i$  and  $c_{i+1}$  are adjacent for all  $0 \leq i < k$ . The distance between cells  $i$  and  $j$  is the length of the shortest path from cell  $i$  to cell  $j$ .



The cells of the beehive are indexed using positive integers as shown. The cells with larger distance from cell 1 are given larger indices. The indices of cells with the same distance from cell 1 increases from left to right. Each positive integer is the index of exactly one cell.

We want to know the distance of two cells whose indices are given.

### Input

There are multiple test cases in the input. Each test case is a single line containing two space-separated integers  $i$  and  $j$  as the indices of two cells ( $1 \leq i, j \leq 10^4$ ). The input terminates with a line containing '0 0' which should not be processed as a test case.

### Output

For each test case, output a single line containing the distance of the given cells.

### Sample Input

```
8 4
11 12
365 365
0 0
```

### Sample Output

```
2
5
0
```