

Find the smallest integer  $N$  that has both of the following properties:

1. The binary representation of  $N$  has exactly  $P$  1's & exactly  $Q$  0's. (Leading Zeroes are allowed).
2. The number of 1's adjacent to one or more 0 in the binary representation is maximized.

## Input

The first line of the input file contains a single integer  $C$ , the number of test cases in the input file. Each of the next  $C$  lines contains two non-negative integers  $P$  &  $Q$  ( $1 \leq P + Q \leq 50$ ).

## Output

For each test case a print the value of  $N$ , as explained in the statement, in a line by itself.

## Sample Input

```
3
4 3
1 1
3 2
```

## Sample Output

```
45
1
13
```