

## Problem C. X and Y set bits

OS Linux

Given two numbers X and Y, find the number whose binary representation has its  $X^{\text{th}}$  and  $Y^{\text{th}}$  bits set to 1 and remaining bits set to 0.

### Input Format

First line of input contains T - number of test cases. Its followed by T lines. Each subsequent line contains two integers: X - the index of the first set bit and Y - the index of the second set bit, separated by a space.

### Constraints

10 points

$1 \leq T \leq 100$

$0 \leq X, Y \leq 30$

40 points

$1 \leq T \leq 10^5$

$0 \leq X, Y \leq 10^5$

### Output Format

For each test case, print the number whose binary representation has its  $X^{\text{th}}$  and  $Y^{\text{th}}$  bits set to 1 and remaining bits set to zero, separated by a newline.

Since this number can be very large, print the result % 1000000007.

### Sample Input 0

```
3
4 3
5 0
15 30
```

### Sample Output 0

```
24
33
73774585
```

### Explanation 0

#### Test Case 1

The binary representation of the number that has bits at position 3 and 4 set is  $11000 = 24$

#### Test Case 2

The binary representation of the number that has the bit at position 5 and 0 set is  $100001 = 33$