Bitwise AND

Objective

Welcome to the last day! Today, we're discussing bitwise operations. Check out the Tutorial tab for learning materials and an instructional video!

Task

Given set $S = \{1, 2, 3, \ldots, N\}$. Find two integers, A and B (where $A < B$), from set S such that the value of $A\&B$ is the maximum possible *and also less than a given integer*, K. In this case, $\&$ represents the *bitwise AND* operator.

Input Format

The first line contains an integer, T, the number of test cases.
Each of the T subsequent lines defines a test case as 2 space-separated integers, N and K, respectively.

Constraints

- $1 \leq T \leq 10^3$
- $2 \leq N \leq 10^3$
- $2 \leq K \leq N$

Output Format

For each test case, print the maximum possible value of $A\&B$ on a new line.

Sample Input

```
3
5 2
8 5
2 2
```

Sample Output

```
1
4
0
```