# Set Construction

| | |
|---|---|
| Input file: | `standard input` |
| Output file: | `standard output` |
| Time limit: | 2 seconds |
| Memory limit: | 1024 megabytes |

You are given an integer $N \geq 2$ and an integer $M$ such that $2 \leq M \leq \frac{N(N+1)}{2}$. Construct a set $A$ of non-negative integers satisfying the following conditions:

- If $x \in A$, then $0 \leq x \leq 2^N - 1$.
- $0 \in A$.
- $2^N - 1 \in A$.
- If $x, y \in A$, then $(x \text{ AND } y) \in A$.
- If $x, y \in A$, then $(x \text{ OR } y) \in A$.
- The number of elements in $A$ is equal to $M$.

Here, AND denotes the bitwise AND operation, and OR denotes the bitwise OR operation.

Given $T$ test cases, solve each of them.

## Input

The input is given from Standard Input in the following format:

$T$
$\text{case}_1$
$\text{case}_2$
$\vdots$
$\text{case}_T$

Each $\text{case}_i$ $(1 \leq i \leq T)$ is given in the following format:

$N$ $M$

- All values in the input are integers.
- $1 \leq T \leq 30$
- $2 \leq N \leq 60$
- $2 \leq M \leq \frac{N(N+1)}{2}$

## Output

For each test case, output $M$ distinct non-negative integers forming a set $A$ that satisfies all the conditions given in the problem statement. You can output the elements in any order.

Note that it can be proven that a valid answer always exists under these constraints.

## Example

| standard input | standard output |
|---|---|
| 3<br>3 5<br>4 8<br>60 2 | 0 1 3 5 7<br>0 1 3 7 8 9 11 15<br>0 1152921504606846975 |

## Note

For the first test case, choosing $A = \{0, 1, 3, 5, 7\}$ satisfies all the conditions in the problem statement. For example, $(3 \text{ AND } 5) = 1 \in A$, and $(3 \text{ OR } 5) = 7 \in A$.

Any $A$ that satisfies the conditions is acceptable; for instance, the output '`7 1 4 0 5`' is also valid. The elements in the output do not need to be in ascending order.

The output '`1 2 3 5 7`' is not valid because $0 \notin A$.

The output '`0 3 4 5 7`' is not valid because $3, 5 \in A$, but $(3 \text{ AND } 5) = 1 \notin A$.

The output '`7 7 7 0 0`' is not valid. Note that the set should not be a multiset.