

PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

B. A BIT of a Construction

time limit per test: 2 seconds
memory limit per test: 256 megabytes

Given integers n and k , construct a sequence of n non-negative (i.e. ≥ 0) integers a_1, a_2, \dots, a_n such that

1. $\sum_{i=1}^n a_i = k$
2. The **number** of 1s in the binary representation of $a_1|a_2|\dots|a_n$ is maximized, where $|$ denotes the **bitwise OR operation**.

Input

The first line contains a single integer t ($1 \leq t \leq 10^4$) — the number of test cases.

The only line of each test case contains two integers n and k ($1 \leq n \leq 2 \cdot 10^5, 1 \leq k \leq 10^9$) — the number of non-negative integers to be printed and the sum respectively.

It is guaranteed that the sum of n over all test cases does not exceed $2 \cdot 10^5$.

Output

For each test case, output a sequence a_1, a_2, \dots, a_n on a new line that satisfies the conditions given above.

If there are multiple solutions, print any of them.

Example

input	Copy
4 1 5 2 3 2 5 6 51	
output	Copy
5 1 2 5 0 3 1 1 32 2 12	

Note

In the first test case, we have to print exactly one integer, hence we can only output 5 as the answer.

In the second test case, we output 1, 2 which sum up to 3, and $1|2 = (11)_2$ has two 1s in its binary representation, which is the maximum we can achieve in these constraints.

In the fourth test case, we output 3, 1, 1, 32, 2, 12 which sum up to 51, and $3|1|1|32|2|12 = (101\,111)_2$ has five 1s in its binary representation, which is the maximum we can achieve in these constraints.

Codeforces Round 940 (Div. 2) and CodeCraft-23

Finished

Practice

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
257625096	Apr/21/2024 18:47	Accepted
257621933	Apr/21/2024 18:38	Wrong answer on pretest 2
257617931	Apr/21/2024 18:28	Wrong answer on pretest 2
257616144	Apr/21/2024 18:24	Wrong answer on pretest 2
257614704	Apr/21/2024 18:21	Wrong answer on pretest 2
257613556	Apr/21/2024 18:19	Wrong answer on pretest 2
257608133	Apr/21/2024 18:09	Wrong answer on pretest 1
257605728	Apr/21/2024 18:06	Wrong answer on pretest 2
257602219	Apr/21/2024 18:01	Wrong answer on pretest 1
257599964	Apr/21/2024 17:58	Wrong answer on pretest 1

→ Problem tags

bitmasks constructive algorithms greedy implementation *1100

No tag edit access

→ Contest materials

Announcement (en)

Tutorial (en)