



HOME TOP CATALOG CONTESTS GYM PROBLEMSET GROUPS RATING EDU API CALENDAR HELP

P

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS ROOM STANDINGS CUSTOM INVOCATION

B. SUMdamental Decomposition

time limit per test: 1 second memory limit per test: 256 megabytes

On a recent birthday, your best friend Maurice gave you a pair of numbers n and x, and asked you to construct an array of **positive** numbers a of length n such that $a_1\oplus a_2\oplus\cdots\oplus a_n=x$

This task seemed too simple to you, and therefore you decided to give Maurice a return gift by constructing an array among all such arrays that has the smallest sum of its elements. You immediately thought of a suitable array; however, since writing it down turned out to be too time-consuming, Maurice will have to settle for just the sum of its elements.

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 < t < 10^4$). The description of the test cases follows.

Each test case consists of a single line containing a pair of numbers n and x ($1 \le n \le 10^9, \ 0 \le x \le 10^9$) — the numbers given to you by Maurice.

Output

For each test case, output your gift to Maurice — the sum of the elements of the array that satisfies all the described properties. If a suitable array does not exist, output -1.

Example



Note

In the first test case, one of the suitable arrays is [2,3]. It can be shown that it is impossible to achieve a smaller sum of array elements.

In the second case, one of the suitable arrays is [1,3,4]. It can also be shown that this is the optimal amount.

Codeforces Round 1022 (Div. 2) Finished Practice

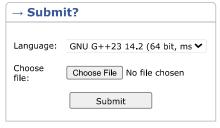
S

→ 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



→ Last submissions		
Submission	Time	Verdict
321852423	May/29/2025 05:13	Accepted
317995000	May/01/2025 18:49	Wrong answer on pretest 1
317974414	May/01/2025 18:04	Wrong answer on pretest 1





^{*}denotes the bitwise XOR operation.

Server time: May/29/2025 09:17:25^{UTC+7} (l1).
Desktop version, switch to mobile version.

<u>Privacy Policy</u> | Terms and Conditions

Supported by

