C. Divine Tree

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

Harshith attained enlightenment in Competitive Programming by training under a Divine Tree. A divine tree is a rooted tree* with n nodes, labelled from 1 to n. The divineness of a node v, denoted $d(v)$, is defined as the smallest node label on the unique simple path from the root to node v.

Aryan, being a hungry Competitive Programmer, asked Harshith to pass on the knowledge. Harshith agreed on the condition that Aryan would be given two positive integers n and m, and he had to construct a divine tree with n nodes such that the total divineness of the tree is m, i.e., $\sum_{i=1}^{n} d(i) = m$. If no such tree exists, Aryan must report that it is impossible.

Desperate for knowledge, Aryan turned to you for help in completing this task. As a good friend of his, help him solve the task.

*A tree is a connected graph without cycles. A rooted tree is a tree where one vertex is special and called the root.

Input

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

The first line of each test case contains two integers n and m ($1 \le n \le 10^6$, $1 \le m \le 10^{12}$).

It is guaranteed that the sum of n over all test cases does not exceed 10^6.

Output

For each test case, output a single integer k in one line — the root of the tree.

Then $n-1$ lines follow, each containing a description of an edge of the tree — a pair of positive integers u_i, v_i ($1 \le u_i, v_i \le n, u_i \ne v_i$), denoting the i-th edge connects vertices u_i and v_i.

The edges and vertices of the edges can be printed in any order. If there are multiple solutions, print any of them.

If there is no solution, print "-1" instead.

Example

input Copy

```
2
1 2
4 6
```

output Copy

```
-1
3
3 1
1 2
2 4
```

Note

Codeforces Round 1033 (Div. 2) and CodeNite 2025
Contest is running
01:05:45
Contestant

→ Submit?

Language: GNU G++23 14.2 (64 bit, ms
Choose file: Choose File No file chosen
Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.
Submit

→ Last submissions

Submission	Time	Verdict
325451156	Jun/21/2025 18:28	Pretests passed

→ Score table

	Score
Problem A	392
Problem B	588
Problem C	980
Problem D	1372
Problem E	1960
Problem F	2352
Problem G	3136
Successful hack	100
Unsuccessful hack	-50
Unsuccessful submission	-50
Resubmission	-50

* If you solve problem on 00:54 from the first attempt

→ Contest materials

- Statements (en)

In the first test case, there is a single node with a value of 1, so getting a sum of 2 is impossible.

In the second test case, getting a sum of 6 is possible with the given tree rooted at 3.