

Problem L. Completely Multiplicative Function

Input file: **standard input**
 Output file: **standard output**
 Time limit: 2 seconds
 Memory limit: 1024 megabytes

A completely multiplicative function is an arithmetic function (that is, a function whose domain is the natural numbers), such that $f(1) = 1$ and $f(ab) = f(a)f(b)$ holds for all positive integers a and b .

Little Cyan Fish loves the concept of the completely multiplicative function, so he wants to find a completely multiplicative function $f : \mathbb{N} \rightarrow \{-1, 1\}$ satisfying the sum of the value of $f(i)$ for all $1 \leq i \leq n$ must be exactly k .

Formally, you need to find a function $f(x)$ satisfying:

- $f(x) \in \{-1, 1\}$ for all integers x .
- $f(x)f(y) = f(xy)$ for all integers x and y .
- $f(1) + f(2) + \dots + f(n) = k$ for given integers n and k .

To test if you have truly understood the beauty of completely multiplicative functions, Little Cyan Fish has asked you to find such a function f .

Input

There are multiple test cases. The first line contains one integer T ($1 \leq T \leq 10^5$), representing the number of test cases.

For each of the test case, the first line contains two integers n and k ($0 \leq k \leq n \leq 10^6$, $n \geq 1$).

It is guaranteed that the sum of n over all test cases does not exceed 2×10^6 .

Output

For each test case:

If there does not exist a solution, output one line containing a single integer -1 .

Otherwise, you should output a single line containing $f(1), f(2), \dots, f(n)$, separated by spaces. The value of each $f(i)$ must be either 1 and -1 , and the sum of these values must be exactly k .

If there are multiple solutions, you may print any of them.

Example

standard input	standard output
4	1 -1 1 1
4 2	1 -1 -1 1 1 1 -1 -1 1 -1
10 0	-1
10 1	1 1 1 1 1 1 1 1 1 1
10 10	