K-Regular Array

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

An array a of size n is considered k-regular if every subarray of a of size k contains all integers from 1 to k, inclusive.

For example, $a = [2, 1, 3, 2]$ is 3-regular, because its two subarrays of size 3 are $[2, 1, 3]$ and $[1, 3, 2]$, each of which contains all integers from 1 to 3. On the other hand, $a = [1, 2, 3, 4]$ is not 3-regular because the subarray $[2, 3, 4]$ of size $k = 3$ does not contain 1.

Your task is to find a k-regular array a of size n such that the sum of its elements is maximized.

Input

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

Each test case consists of a single line containing two integers n and k ($1 \le k \le n \le 2 \cdot 10^5$) — the desired size of the array a, and the parameter k described above.

It is guaranteed that the sum of n across all test cases is at most $2 \cdot 10^5$.

Output

For each test case, output a single line containing n integers $a_1, a_2, \cdots a_n$ — a k-regular array a of size n with maximal sum.

If there are multiple solutions, you may print any.

Example

standard input	standard output
4 4 3 5 1 3 2 1 1	3 1 2 3 1 1 1 1 1 2 1 2 1

Note

In the first sample case, the array $a = [3, 1, 2, 3]$ is 3-regular because its two subarrays of size 3 are $[3, 1, 2]$ and $[1, 2, 3]$, each of which contains all integers from 1 to 3. The sum of this array is $3 + 1 + 2 + 3 = 9$, which we can show is maximal for this n and k.

In the second sample case, each subarray of size 1 must contain 1, and therefore, the array must consist only of ones.