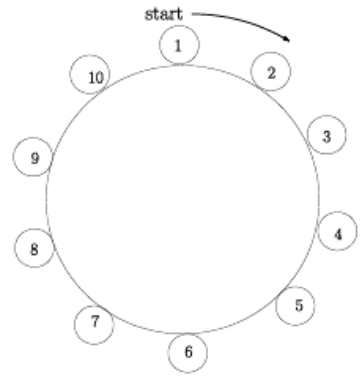


Integers $1, 2, 3, \dots, n$ are placed on a circle in the increasing order as in the following figure. We want to construct a sequence from these numbers on a circle. Starting with the number 1, we continually go round by picking out each k -th number and send to a sequence queue until all numbers on the circle are exhausted. This linearly arranged numbers in the queue are called *Jump*(n, k) sequence where $1 \leq n, k$.



Let us compute *Jump*(10, 2) sequence.

The first 5 picked numbers are 2, 4, 6, 8, 10 as shown in the following figure. And 3, 7, 1, 9 and 5 will follow. So we get $\text{Jump}(10, 2) = [2, 4, 6, 8, 10, 3, 7, 1, 9, 5]$. In a similar way, we can get easily $\text{Jump}(13, 3) = [3, 6, 9, 12, 2, 7, 11, 4, 10, 5, 1, 8, 13]$, $\text{Jump}(13, 10) = [10, 7, 5, 4, 6, 9, 13, 8, 3, 12, 1, 11, 2]$ and $\text{Jump}(10, 19) = [9, 10, 3, 8, 1, 6, 4, 5, 7, 2]$.

$$\text{Jump}(10, 2) = [2, 4, 6, 8, 10, 3, 7, 1, 9, 5]$$

You write a program to print out the last three numbers of *Jump*(n, k) for n, k given. For example suppose that $n = 10, k = 2$, then you should print 1, 9 and 5 on the output file. Note that $\text{Jump}(1, k) = [1]$.

Input

Your program is to read the input from standard input. The input consists of T test cases. The number of test cases T is given in the first line of the input. Each test case starts with a line containing two integers n and k , where $5 \leq n \leq 500,000$ and $2 \leq k \leq 500,000$.

Output

Your program is to write to standard output. Print the last three numbers of *Jump*(n, k) in the order of the last third, second and the last first.

Sample Input

```
3
10 2
13 10
30000 54321
```

Sample Output

```
1 9 5
1 11 2
10775 17638 23432
```