

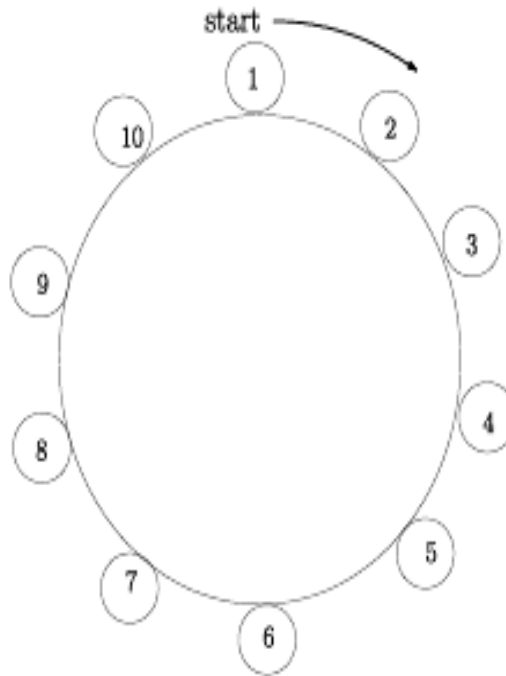


## 4727 - Jump

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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  $\text{Jump}(n, k)$  sequence where  $1 \leq n, k$ .

Let us compute  $\text{Jump}(10, 2)$  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  $\text{Jump}(n, k)$  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. The following shows sample input and output for three test cases.

## Sample Input

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

## Sample Output

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

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