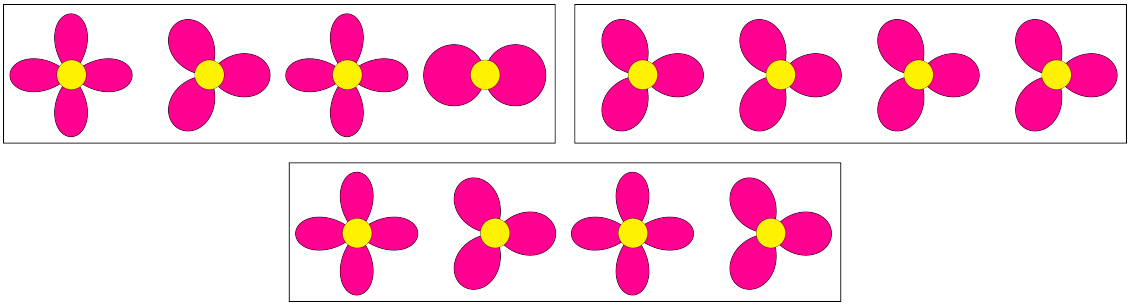
Gwen's Gift

Problem ID: gwensgift

Time limit: 1 second

Gwen loves most numbers. In fact, she loves every number that is *not* a multiple of n (she really hates the number n). For her friends' birthdays this year, Gwen has decided to draw each of them a sequence of $n-1$ flowers. Each of the flowers will contain between 1 and $n-1$ flower petals (inclusive). Because of her hatred of multiples of n, the total number of petals in any non-empty contiguous subsequence of flowers cannot be a multiple of n. For example, if $n = 5$, then the top two paintings are valid, while the bottom painting is not valid since the second, third and fourth flowers have a total of 10 petals. (The top two images are Sample Input 3 and 4.)



Gwen wants her paintings to be unique, so no two paintings will have the same sequence of flowers. To keep track of this, Gwen recorded each painting as a sequence of $n-1$ numbers specifying the number of petals in each flower from left to right. She has written down all valid sequences of length $n-1$ in lexicographical order. A sequence $a_1, a_2, \ldots, a_{n-1}$ is lexicographically smaller than $b_1, b_2, \ldots, b_{n-1}$ if there exists an index k such that $a_i = b_i$ for $i < k$ and $a_k < b_k$.

What is the kth sequence on Gwen's list?

Input

The input consists of a single line containing two integers n ($2 \leq n \leq 1\,000$), which is Gwen's hated number, and k ($1 \leq k \leq 10^{18}$), which is the index of the valid sequence in question if all valid sequences were ordered lexicographically. It is guaranteed that there exist at least k valid sequences for this value of n.

Output

Display the kth sequence on Gwen's list.

Sample Input 1	Sample Output 1
4 3	2 1 2

Sample Input 2	Sample Output 2
2 1	1

Sample Input 3	Sample Output 3
5 22	4 3 4 2

Sample Input 4	Sample Output 4
5 16	3 3 3 3