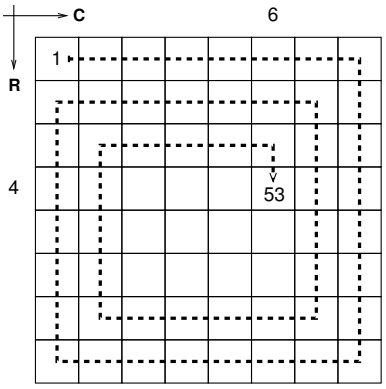
Problem E
Spiral

Given a $N \times N$ grid, we would like to place beans, one in each square, following a spiral as shown in the picture. Starting from the upper-left square, with coordinates $(1, 1)$, and then going to the right until possible, then down until possible, then left until possible and then up until possible. We repeat this pattern, right-down-left-up, until B beans are placed into the grid. The problem is: given N and B, at which coordinates will the last bean be placed? In the picture, for $N = 8$ and $B = 53$, the last bean is placed at coordinates $(4, 6)$.



Input

The input contains several test cases. A test case consists of a single line containing two integers, N and B, where $2 \leq N \leq 2^{30}$ and $1 \leq B \leq N^2$.

Output

For each test case in the input your program must output one line containing two integers, R and C, where (R, C) are the coordinates of the last bean.

Examples

Input	Output
8 53 1073741824 1152921504603393520	4 6 536871276 536869983