One day, an ant called Alice came to an M*M chessboard. She wanted to go around all the grids. So she began to walk along the chessboard according to this way: (you can assume that her speed is one grid per second)

At the first second, Alice was standing at (1,1). Firstly she went up for a grid, then a grid to the right, a grid downward. After that, she went a grid to the right, then two grids upward, and then two grids to the leftin a word, the path was like a snake.

For example, her first 25 seconds went like this:

(the numbers in the grids stands for the time when she went into the grids)

25	24	23	22	21	**5**
10	11	12	13	20	**4**
9	8	7	14	19	**3**
2	3	6	15	18	**2**
1	4	5	16	17	**1**
1	**2**	**3**	**4**	**5**	

At the 8-th second , she was at (2,3), and at 20-th second, she was at (5,4).

Your task is to decide where she was at a given time (you can assume that M is large enough).

Input

Input file will contain several lines, and each line contains a number N ($1 \leq N \leq 2 * 10^9$), which stands for the time. The file will be ended with a line that contains a number '0'.

Output

For each input situation you should print a line with two numbers (x,y), the column and the row number, there must be only a space between them.

Sample Input

```
8
20
25
0
```

Sample Output

```
2 3
5 4
1 5
```