

Problem A

Cross Year Party

Input File: *testdata.in*

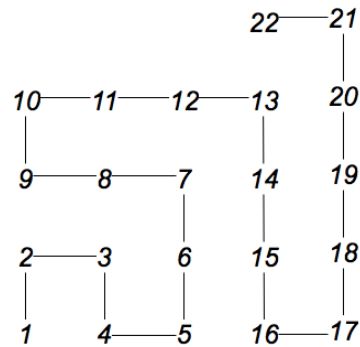
Time Limit: 1 second

Problem Description

It is about the time for the Cross-Year-Party! Every year, people have to wait in a long line in order to buy a ticket to the party. To prevent out-of-control situations, the Cross-Year-Party Organization sets the following rules about the waiting line this year:

1. The waiting line is on a 2-D unit grid with the coordinate of the south-west corner being $(0, 0)$. Given a point (x, y) in the grid, x (respectively, y) indicates how many units to the east (respectively, north) of the point $(0, 0)$.
2. The coordinate of the first person in the line is $(0, 0)$.
3. The coordinate of the second person in the line is $(0, 1)$.
4. The distance between two coordinates (x_1, y_1) and (x_2, y_2) is $\sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$.
5. The distance between the i -th, $i > 1$, person and the $(i - 1)$ -th person must be equal to 1.
6. The distance between the i -th person and the first person must be as less as possible.
7. The x-axis and y-axis values in the coordinate must be non-negative integers.
8. Each coordinate is allowed to have one waiting person at most.

The figure below shows an example of the waiting line with 22 people, and each person is marked by his sequence number in the line. For instance, in this figure, the 20-th person is located at the coordinate (4,3), and the 8-th person is located at the coordinate (1,2). Now, given the sequence number of a particular person, your task is to calculate his coordinate in the line.



Technical Specifications

1. The number of people in the line is less than or equal to 22,500 and is at least 1.
2. The x-axis and y-axis values in the coordinate must be non-negative integers.

Input Format

There are multiple test cases in the input file, and each test case has one integer K , indicating the K -th person in the waiting line, in one line. $K = 0$ indicating the end of the test cases.

Output Format

For each test case, output the x-value and y-value in one line, separated by a white space, of the K -th person in the waiting line.

Sample Input

8
20
0

Sample Output

1 2
4 3