Humbertov and the Triangular Spiral I

Problem	Submissions	Leaderboard	Discussions

Recently the professor *Humbertov Moralov* was sick, he had a fever and when he went to bed, he began to have a delirious dream. In the dream he draw over and over again a triangular spiral that began in the origin of the cartesian plane $(\text{coordinate }(0,0))$ and the triangular spiral got bigger every time linking integer coordinates in the cartesian plane. For clarity, the triangular spiral is presented below:

The dream was so disturbing and it was repeated so many times, that when *Moralov* woke up, he remembered perfectly the triangular spiral, and for this reason he drew the previous graphic.

In the dream *Moralov* was disturbed and intrigued because he didn't know if all the integer coordinates could be reached at some point in the triangular spiral and, if that was the case, he also didn't know what would be the coordinate in the cartesian plane of the n-th point that is reached when drawing the triangular spiral. The first doubt was immediately resolved when the professor did the graphic ... all the points (integer coordinates) of the cartesian plane are eventually reached by the triangular spirals! Now the professor *Moralov* needs your help to indicate the coordinate in the cartesian plane of the n-th point that is reached when drawing the triangular spiral.

Input Format

Input begins with an integer $t\,(1 \le t \le 5 \cdot 10^5)$, the number of test cases, followed by t lines, each line contains an integer n $(1 \le n \le 10^{12})$.

Constraints

$1 \le t \le 5 \cdot 10^5$
$1 \le n \le 10^{12}$

Output Format

For each test case, you should print a single line containing two integers, separated by a space, denoting the coordinates x and y in the Cartesian coordinate system of point n in the triangular spiral.

Sample Input 0

```
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
```

Sample Output 0

```
0 0
-1 0
0 1
1 0
2 -1
1 -1
0 -1
-1 -1
-2 -1
-3 -1
-2 0
-1 1
0 2
1 1
2 0
```
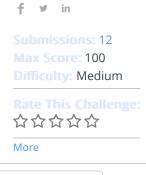
C

```c
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>

int main() {

    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    return 0;
}
```

Line: 1 Col: 1

Upload Code as File   ☐ **Test against custom input**   Run Code   Submit Code

Interview Prep | Blog | Scoring | Environment | FAQ | About Us | Support | Careers | Terms Of Service | Privacy Policy |