The Book Thief

On February 18, 2014, Red Matemática proposed the following mathematical challenge on their twitter account (@redmatematicant): "While Anita read: *The book thief* by Markus Zusak, She added all the page numbers starting from 1. When she finished the book, she got a sum equal to 9.000 but she realized that one page number was forgotten in the process. What is such number? and, how many pages does the book have?"

Using this interesting puzzle as our starting point, the problem you are asked to solve now is: Given a positive integer s $(1 \leq s \leq 10^8)$ representing the result obtained by Anita, find out the number of the forgotten page and the total number of pages in the book.

Input Format

The input begins with a positive integer t $(1 \leq t \leq 10^6)$, denoting the number of test cases.

Each test case is presented on a single line, and contains one positive integer s.

Constraints

$1 \leq t \leq 10^6$
$1 \leq s \leq 10^8$

Output Format

For each test case, your program must print two positive integers, separated by a space, denoting the number of the forgotten page and the total number pages in the book. Each valid test case must generate just one output line.

Sample Input 0

```
9
1
2
3
4
5
6
9000
499977
49999775
```

Sample Output 0

```
2 2
1 2
3 3
2 3
1 3
4 4
45 134
523 1000
5225 10000
```

Submissions: 162
Max Score: 100
Difficulty: Medium

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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 */
    int totalCases, idCase, s, totalPages, forgottenPage, page, triangular;

    scanf("%d", &totalCases);

    for(idCase = 1; idCase <= totalCases; idCase++)
    {
        scanf("%d", &s);
        page = (-1 + sqrt(1 + 8 * s)) / 2;
        triangular = (page * (page + 1)) / 2;

        if(s == triangular)
        {
            totalPages = page + 1;
            forgottenPage = page + 1;
        }
        else
        {
            page++;
            triangular = (page * (page + 1)) / 2;
            forgottenPage = triangular - s;
            totalPages = page;
        }

        printf("%d %d\n", forgottenPage, totalPages);
    }
    return 0;
}
```

Line: 1 Col: 1

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