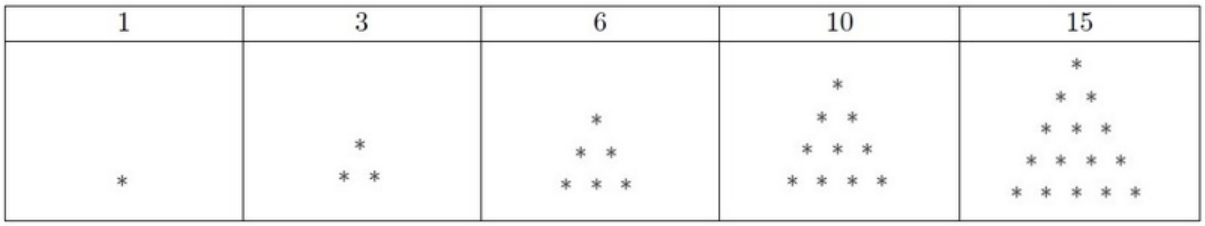
Triangular Numbers

Triangular Numbers are positive integer numbers such that they represent an amount of "dots" with which you can form a compact equilateral triangle of dots.

The first five triangular numbers are:



For this problem, you must create a program that determines if a given number n is triangular or not.

Input Format

Input may contain several test cases. Each test case is given in a line of its own, and contains an integer n $(1 \leq n \leq 16 \cdot 10^{18})$. Input ends with a test case in which n is zero, and it must not be processed.

Constraints

$1 \leq n \leq 16 \cdot 10^{18}$

Output Format

For each test case given in the input, your program must print YES or NO, indicating whether n is a triangular number or not. There must be a single line of output for each test case.

Sample Input 0

```
1
15
16
101
15999999994386249876
0
```

Sample Output 0

```
YES
YES
NO
NO
YES
```

Submissions: 136
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 */
    unsigned long long int n, k, kplus1;

    while(scanf("%llu", &n) && n != 0){
        k = ((-1 + (unsigned long long int)sqrt(1+8*(double)n))/2);
        kplus1 = k + 1;

        if((k % 2) == 0)
            k /= 2;
        if((kplus1 % 2) == 0)
            kplus1 /= 2;
        if(k*kplus1 == n)
            printf("YES\n");
        else{
            printf("NO\n");
        }
    }

    return 0;
}
```

Line: 1 Col: 1

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