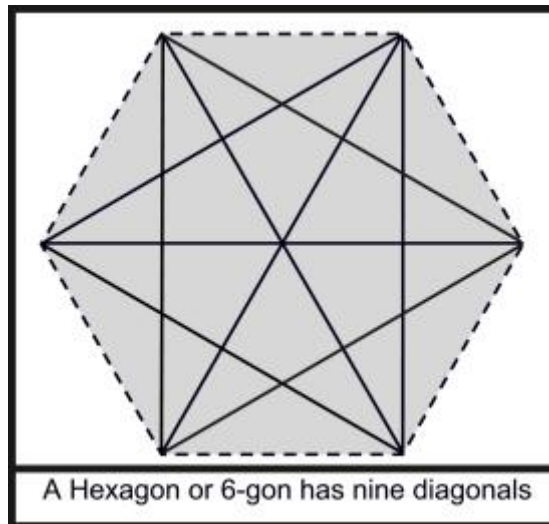


## 10784 Diagonal

The number of diagonals of an  $n$ -gon is not less than  $N$ . What is the minimum possible value of  $n$ ?



### Input

The input file contains less than 1001 lines of inputs. Each line contains a positive integer  $N$  ( $N \leq 10^{15}$ ) that indicates the minimum possible number of diagonals. Input is terminated by a line containing a zero. This line should not be processed.

### Output

For each line of input produce one line of output, which contains the output serial number, and also the minimum possible value for  $n$  (Number of sides).

### Sample Input

```
10
100
1000
0
```

### Sample Output

```
Case 1: 7
Case 2: 16
Case 3: 47
```