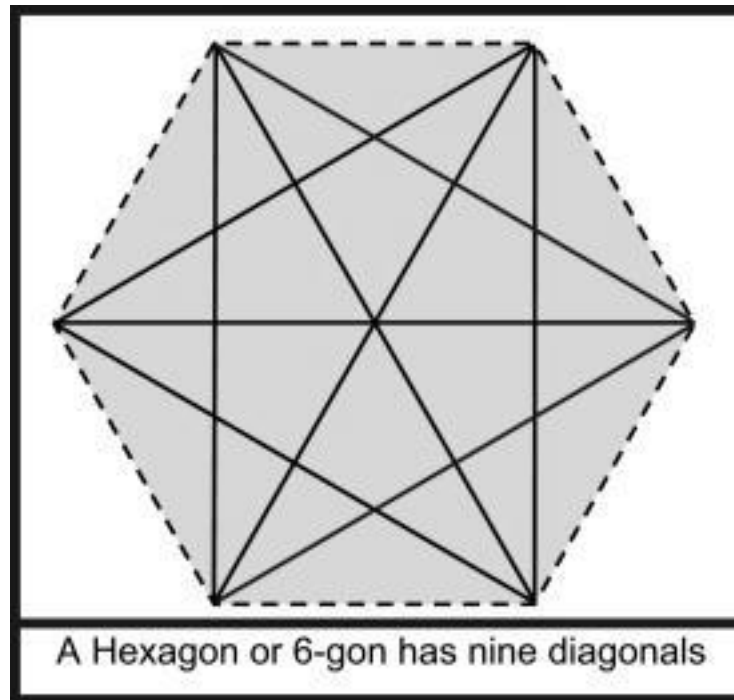


10784 Diagonal

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
```