

Longest Array Length

Time Limit	0.2s
Memory Limit	64MB

Description

Every morning, Jeh loves to play around the garden of his house. One day, he found a piece of paper. The paper has N positive integers written on the surface. After he saw the numbers, he got an idea of a problem. Given an positive integer X , find the maximum length of array such that every element of array is positive integers, sum of all element in array equals to X , and no two adjacent element are equal. Since he's too lazy to calculate the answer of all N numbers, he ask you as a programmer to help him solve it.

Input Format

First input consist of a positive integer N , the number of positive integer written on paper. Second input consist of N lines, each line consist of a positive integer X_i .

Output Format

Print N lines, i -th line answer to i -th question

Constraint

- $1 \leq N \leq 10^5$
- $1 \leq X_i \leq 10^{18}$

Sample Input 1

```
3
1
3
10
```

Sample Output 1

```
1
2
7
```