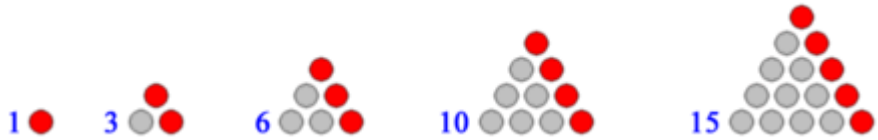
I. Fermat's Triangular Numbers

Program:	tri.(cpp|java)
Input:	tri.in
Balloon Color:	Yellow

Description

A Triangular Number is a number that can be represented as dots or pebbles arranged in the shape of an equilateral triangle.

Here are the first 5 triangular numbers (source: Wikipedia)



Fermat's Triangular number theorem (proven later by Carl Gauss) states that every positive integer is the sum of at most three triangular numbers. For example, 17 (which isn't a triangular number) is the sum of 1+6+10 (all being triangular numbers). Here are a few more examples:

2 = 1+1
17 = 1+6+10
49 = 21+28

Given an integer *n* determine the triangular numbers that sum up to it.

Input Format

The input starts with a number **T** representing **T** test cases in the file. Every test case is described on a single line with a single integer **N** (**1<=N<=100,000,000**).

Output Format

For each test case print one line of output in the form:

```
k. result
```

where **k** is the test case number (starting at 1), and **result** is the list of triangular numbers that sum up to the integer ***n*** for test case **k** in an increasing order, separated by a single space. If more than one solution exists print the one with the least number of triangular numbers. If the expression has the same number of triangular numbers, print the one with the smallest triangular number. If both expressions have the same smallest triangular number, print the one with the second smallest.

For example, 19 = 1+3+15 or 3+6+10. Your program should output the first solution. If the number *n* is triangular, then you should output the number itself.

Sample Input / Output

tri.in

```
6
10
19
16
17
48
49
```

OUTPUT

```
1. 10
2. 1 3 15
3. 1 15
4. 1 1 15
5. 3 45
6. 21 28
```