C Challenge to the Reader

1s, 256MB

A mathematician from ancient times left behind a riddle for future generations. Carved into stone lies a challenge about numbers and operations: Any number can be represented using a sequence of + and − signs applied to the numbers 1, 2, 3, ...

You, a bright and curious mind from the future, decide to take up this challenge.

Given an integer X, your task is to express it in the form $1 \pm 2 \pm 3 \pm 4 \pm \cdots \pm N$ so that the result equals X and ***N* is the smallest possible number**.

INPUT

The first line contains a single integer t $(1 \le t \le 1000)$ — the number of test cases.

Each testcase contains a single line of one integer X $(|X| \le 2 \cdot 10^5)$.

It is guaranteed that the sum of $|X|$ over all test cases is at most $2 \cdot 10^5$.

OUTPUT

For each testcase:

First, print a line with an integer N

Then print one valid expression in the format $1 \pm 2 \pm 3 \pm 4 \pm \cdots \pm N$. No spaces are allowed, and the sequence must include all numbers from 1 to N.

If there are many expressions, output any of them.

EXAMPLE

INPUT	OUTPUT
5 0 -2 1 4 -6	3 1+2-3 4 1-2+3-4 1 1 4 1+2-3+4 7 1+2+3-4+5-6-7

This page is intentionally left blank.