

996 Find the Sequence

The problem of finding the next term of a given sequence of numbers is usually proposed in QI tests. We want to construct a method and a codification that allow us to know all the sequence from the first N terms.

Let $S = (S_i)_{i \in \mathbb{N}}$ denote a sequence of real numbers whose i -order term is S_i . We codify a constant sequence with the following operator:

$$S = [n] \quad \text{meaning that} \quad S_i = n \quad \forall i \in \mathbb{N},$$

where $n \in \mathbb{Z}$. We also define the following operators on a given sequence of numbers $S = (S_i)_{i \in \mathbb{N}}$:

$$V = [m + S] \quad \text{meaning that} \quad V_i = \begin{cases} m & , i = 1 \\ V_{i-1} + S_{i-1} & , i > 1 \end{cases};$$

$$V = [m * S] \quad \text{meaning that} \quad V_i = \begin{cases} m * S_1 & , i = 1 \\ V_{i-1} * S_i & , i > 1 \end{cases};$$

where $m \in \mathbb{N}$. For example we have the following codifications:

$$\begin{aligned}
 [2 + [1]] &= 2, 3, 4, 5, 6 \dots & [1 + [2 + [1]]] &= 1, 3, 6, 10, 15, 21, 28, 36 \dots \\
 [2 * [1 + [2 + [1]]]] &= 2, 6, 36, 360, 5400, 113400 \dots & [2 * [5 + [-2]]] &= 10, 30, 30, -30, 90, -450, 3150 \dots
 \end{aligned}$$

Given a sequence of N integer numbers and an integer M , the problem is to write the codification that generate the sequence and have at most M operators. We have that $2 \leq N \leq 51$ and $1 \leq M \leq 50$.

Input

The input file contains several test cases. For each of them, the program input is a single line containing M followed by the list of first terms of the sequence. The terms of the given sequence are positive (in the interval $[1, 200000]$) or negative integers (in the interval $[-200000, -1]$), and their number N can differ but it is always greater than M .

Output

For each test case, the program output is a single line containing the codification without any space. If there exists no solution with at most M operators, the output must be '[0]'.

Examples

Input	Output
2 2 3 4	[2+[1]]
3 1 3 6 10 15	[1+[2+[1]]]
4 2 6 36 360 5400 113400	[2*[1+[2+[1]]]]

Sample Input

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3 10 30 30 -30 90 -450 3150
2 2 6 36 360 5400 113400
```

Sample Output

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[2*[5+[-2]]]
[0]
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