A stupid sequence is a sequence generated by a function defined by a polynomial as shown below:

$$f(x) = a_0 + a_1x + a_2x^2 + a_3x^3 + a_4x^4 + a_5x^5 + a_6x^6$$

So the stupid sequence is actually $f(1), f(2), f(3), f(4) \ldots$

You can assume that for all i $(0 \leq i \leq 6)$, $0 \leq a_i \leq 1000$.

In this problem you will be given the first 1500 terms of stupid sequence, and you will have to find the values of a_0,a_1,a_2,a_3,a_4,a_5,a_6.

Input

First line of the input file contains an integer N $(0 < N < 101)$ which denotes the total number of input set. The description of each set is given below:

Each set contains 1500 lines of inputs. Each line contains a single integer. The i-th line of a set denotes the i-th element of a stupid sequence. All these integers fit in 64-bit unsigned integer. There is a blank line after the input of each set.

Output

For each set of input produce one line of output. This line contains the values of a_0,a_1,a_2,a_3,a_4,a_5,a_6. All these values are non-negative and less than 1001. If such values are not found print a line '`This is a smart sequence!`' instead.

Note: As the sample input is too to include here, we write just the first 10 elements of sample cases.

Sample Input

```
3
1
1
1
1
1
1
1
1
1
...

2
6
12
20
30
42
56
72
90
110
...

1
64
729
4096
15625
46656
117649
250000
500000
1000000
...
```

Sample Output

```
1 0 0 0 0 0 0
0 1 1 0 0 0 0
This is a smart sequence!
```