Given a positive integer n, you are to find am integer f, such that:

$$f^3 = a_1^3 + a_2^3 + \cdots + a_n^3$$

where all $a_1, a_2, \ldots, a_n$ are distinct positive integers.

For example,

if $n = 3$, one valid f is 71, since $71^3 = 14^3 + 23^3 + 70^3 = 357911$.
if $n = 4$, one valid f is 100, since $100^3 = 56^3 + 58^3 + 67^3 + 69^3 = 1000000$.

Your number f may be big, but it has at most 250 digits.

Input

The first line contains the number of tests t ($1 \leq t \leq 20$). Each case contains a single line with a positive integer n ($1 \leq n \leq 100$).

Output

For each test case, print the case number and $n + 1$ numbers: $f, a_1, a_2, \ldots, a_n$. If no f exists, print a '`-1`' and n zeros.

Sample Input

```
3
3
2
4
```

Sample Output

```
Case 1: 71 14 23 70
Case 2: -1 0 0
Case 3: 100 56 58 67 69
```