Problem E. Freshman's Dream

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Everyone knows that `(a + b)^n` is never equal to `a^n + b^n` for positive integers a, b and n if $n \geq 2$. Or is it? Look again.

Given an integer $n \geq 2$, you have to find positive integers a and b such that `(a + b)^n` is equal to `a^n + b^n`, where **every symbol is interpreted as it is in C++**, including operator precedence. In other words, you have to find a and b such that

$$(a + b) \oplus n = a \oplus (n + b) \oplus n$$

holds, where $\oplus$ is the bitwise XOR operation.

Input

The first line contains one integer t ($1 \leq t \leq 10^5$) — the number of test cases. t test cases follow.

Each test case consists of one integer n ($2 \leq n < 2^{60}$).

Output

For each test case, print the answer on a separate line as follows.

- If there is no solution, print -1.
- Otherwise, print positive integers a and b ($1 \leq a, b < 2^{60}$) such that the equation in the problem statement holds. Under the constraints of the problem, it can be proven that if there is a solution, then there is also a solution with $a, b < 2^{60}$. If there are multiple solutions, you can print any one of them.

Example

standard input	standard output
5 2 3 6 10 18	1 1 -1 3 5 7 3 11 39