Abul and Prime Numbers

Description:

Mr. Abul is a big fan of **prime numbers**. As a fan of prime numbers, he wants to know whether a prime number **P** can be expressed as **Difference of two Squared Number** or not?.

In other words you have to calculate two natural numbers **X** and **Y** where $P = X^2 - Y^2$

For example, prime number $P = 5$ can be expressed as $3^2 - 2^2 = 9 - 4 = 5$, here $X = 3$ and $Y = 2$.

Input

Input starts with an integer **T**<=100, denoting the number of test cases.

Each case contains an integer **N**$(2 \leq N \leq 10^{18})$ denoting a prime number.

Output

For each case of input, print X and Y separated by a space if it is possible to express as Difference of two Squared Number. Otherwise, print -1.

Example

Input:

3

2

3

5

Output:

-1

2 1

3 2