Sum of Squares in two different ways

Given an integer n

, find out if it can be expressed as the sum of squares in two different ways.

For example $50=1+49=25+25$

If your solution is $n=a2+b2=c2+d2$

where $a \le b$ and $c \le d$ and $b < d$ then print a,b,c,d separated by a single space. If there are more than one solution, print the solution with minimum value of d

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If there is no solution print `-1 -1 -1 -1` instead.

Note that a,b,c,d

should be **positive integers** (i.e. 0 or negative integers are not allowed).

Input

First line contains a single integer T

, the number of testcases.

First line of each testcase contains a singe integer n

, the number to be expressed as a sum of squares in two different ways.

Output

- Print 4 space separated integers.
- If there is no solution then print `-1 -1 -1 -1`.
- Otherwise print four positive integers a,b,c,d
- such that :
- $n=a2+b2=c2+d2$
- $a \le b$

, $c \le d$
- $b < d$
- among all such solutions d
- is minimum
- It can be shown that with the above constraints the answer to be printed is unique.

Constraints

- $1 \le T \le 103$
- $1 \le n \le 104$

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Sample Input

```
2
50
1
```

Sample Output

```
5 5 1 7
-1 -1 -1 -1
```

Explanation

For the first testcase $50=5^2+5^2=1^2+7^2$

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For the second testcase clearly there are no solutions since the sum of two positive squares is at least 2.