Project Euler #142: Perfect Square Collection

This problem is a programming version of Problem 142 from projecteuler.net

Print N triples of integers (x, y, z) such that $x > y > z > 0$, $x \leq 10^{12}$, and $x + y$, $x - y$, $x + z$, $x - z$, $y + z$, $y - z$ are all perfect squares.

Input Format

The input contains a single integer, N.

Constraints

Input #00: $N = 1$
Input #01: $N = 3$
Input #02: $N = 10$
Input #03: $N = 30$
Input #04: $N = 100$
Input #05: $N = 300$
Input #06: $N = 1000$
Input #07: $N = 3000$
Input #08: $N = 5000$

Output Format

Output N lines, where each line contains three integers separated by single spaces: x, y and z.

Sample Input

```
1
```

Sample Output

```
472226642633 463877982992 452392145408
```

Explanation

The problem asks us to output a single triple (x, y, z). The sample output gives:

$x = 472226642633$
$y = 463877982992$
$z = 452392145408$

You can verify that:

- $x > y > z > 0$
- $x \leq 10^{12}$
- $x + y = 936104625625 = 967525^2$
- $x - y = 8348659641 = 91371^2$
- $x + z = 924618788041 = 961571^2$

- $x - z = 19834497225 = 140835^2$
- $y + z = 916270128400 = 957220^2$
- $y - z = 11485837584 = 107172^2$

You can output other triples aside from this, as long as they satisfy the constraints.