

## Practice Problem PB

### Sum of Three Cubes

Recently, a mathematician has just found three cube numbers that sum up to 42 using over a million hours of computing time. With this breakthrough, we have found three cube numbers that sum up to all non-negative integers less than 100 if it is possible to do so. In other words, for every  $0 \leq N < 100$ , we have found the triples  $(X, Y, Z)$  such that  $X^3 + Y^3 + Z^3 = N$ , or we have proved that no such triplet exists.

The following is a table of  $(X, Y, Z)$  that satisfies  $X^3 + Y^3 + Z^3 = N$  for  $0 \leq N < 50$ .

$N$	$X$	$Y$	$Z$
0	0	0	0
1	0	0	1
2	0	1	1
3	1	1	1
4	No solution		
5	No solution		
6	-1	-1	2
7	0	-1	2
8	0	0	2
9	0	1	2
10	1	1	2
11	-2	-2	3
12	7	10	-11
13	No solution		
14	No solution		
15	-1	2	2
16	-511	-1609	1626
17	1	2	2
18	-1	-2	3
19	0	-2	3
20	1	-2	3
21	-11	-14	16
22	No solution		
23	No solution		
24	-2901096694	-1555055555	15584139827
25	-1	-1	3
26	0	-1	3
27	0	0	3
28	0	1	3
29	1	1	3
30	-283059965	-221888517	2220422932
31	No solution		
32	No solution		
33	8866128975287528	-8778405442862239	-2736111468807040
34	-1	2	3
35	0	2	3
36	1	2	3
37	0	-3	4
38	1	-3	4

39	117367	134476	-159380
40	No solution		
41	No solution		
42	-80538738812075974	80435758145817515	12602123297335631
43	2	2	3
44	-5	-7	8
45	2	-3	4
46	-2	3	3
47	6	7	-8
48	-23	-26	31
49	No solution		

Reading a long table is a tedious job, so you would like to create a program that takes  $N$  as an input, and produce  $X$ ,  $Y$ ,  $Z$  as the output. The value of  $X$ ,  $Y$ , and  $Z$  must be an integer not less than  $-10^{18}$  and not more than  $10^{18}$ .

### Input

Input begins with a line containing an integer:  $N$  ( $0 \leq N < 50$ ).

### Output

Output in a line three integers (separated by a single space):  $X$   $Y$   $Z$  that satisfies the condition given in the problem statement. If there is more than one solution, you can output any of them. If there is no solution, output 0 instead.

### Sample Input #1

2

### Sample Output #1

3737830626090 1490220318001 -3815176160999

*Explanation for the sample input/output #1*

Other answers such as  $X = 1214928$ ,  $Y = 3480205$ , and  $Z = -3528875$  are also accepted.

### Sample Input #2

5

### Sample Output #2

0