

international collegiate programming contest INDONESIA NATIONAL CONTEST INC 2022



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 $0 \le N < 100$, 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 $0 \le N < 50$.

0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1	N	X	Y	Z	
1 0 0 1					
2 0 1 1 1 3 1 1 1 1 4 Image: contract of the contra					
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35 0 2 3 36 1 2 3 37 0 -3 4	34	-1	2	3	
36 1 2 3 37 0 -3 4	35	0		3	
		1	2	3	
38 1 -3 4	37	0	-3	4	
	38	1	-3	4	



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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 ($0 \le N < 50$).

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 $X=1214928,\,Y=3480205,\,{\rm and}\,Z=-3528875$ are also accepted.

Sample Input #2

5

Sample Output #2

0