

Southeastern European Regional Programming Contest
Bucharest, Romania – Vinnytsya, Ukraine
October 22, 2016

Problem I
Cubes

Input File: I.in
Output File: standard output
Time Limit: 0.5 seconds (C/C++)
Memory Limit: 256 megabytes

Write a program that takes a natural number N and decomposes it as a sum of the minimum number of exact natural cubes. The program should find $m_1, m_2, \ldots, m_k$, such that each m_i is a natural number, $m_1^3 + m_2^3 + \ldots + m_k^3 = N$, and k is minimal.

Input

The only line of the input file contains the number N ($1 \le N \le 44{,}777{,}444$).

Output

Your program should write exactly two lines. The first line contains the number k - the minimum number of natural cubes. The second line contains k space-separated natural numbers - that raised to the power of 3 sum to N.

Sample input	Sample output
42	7 2 2 2 2 2 1 1
43	3 3 2 2