

D. Bear and Tower of Cubes

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Limak is a little polar bear. He plays by building towers from blocks. Every block is a cube with positive integer length of side. Limak has infinitely many blocks of each side length.

A block with side a has volume a^3 . A tower consisting of blocks with sides a_1, a_2, \dots, a_k has the total volume $a_1^3 + a_2^3 + \dots + a_k^3$.

Limak is going to build a tower. First, he asks you to tell him a positive integer X — the required total volume of the tower. Then, Limak adds new blocks greedily, one by one. Each time he adds the biggest block such that the total volume doesn't exceed X .

Limak asks you to choose X not greater than m . Also, he wants to maximize the number of blocks in the tower at the end (however, he still behaves greedily). Secondly, he wants to maximize X .

Can you help Limak? Find the maximum number of blocks his tower can have and the maximum $X \leq m$ that results this number of blocks.

Input

The only line of the input contains one integer m ($1 \leq m \leq 10^{15}$), meaning that Limak wants you to choose X between 1 and m , inclusive.

Output

Print two integers — the maximum number of blocks in the tower and the maximum required total volume X , resulting in the maximum number of blocks.

Examples

input
48
output
9 42

input
6
output
6 6

Note

In the first sample test, there will be 9 blocks if you choose $X = 23$ or $X = 42$. Limak wants to maximize X secondarily so you should choose 42.

In more detail, after choosing $X = 42$ the process of building a tower is:

- Limak takes a block with side 3 because it's the biggest block with volume not greater than 42. The remaining volume is $42 - 27 = 15$.
- The second added block has side 2, so the remaining volume is $15 - 8 = 7$.
- Finally, Limak adds 7 blocks with side 1, one by one.

So, there are 9 blocks in the tower. The total volume is $3^3 + 2^3 + 7 \cdot 1^3 = 27 + 8 + 7 = 42$.