Competitive Programming SS24

Submit until end of contest

Problem: penteracts (1.0 second timelimit)

Next month is your kid's birthday and you want to surprise it with the brand new integer x. Just putting it into a box and handing it over, however, would be way too boring. You want to masquerade it a little bit.

You have been reading a lot about penteracts[1] recently and are now determined to give your kid the integer x as two integer sidelengths a, b of two penteracts, the difference of whom is equal to the integer x, i.e. formally $a^5 - b^5 = x$. Although you have to be careful when trying to wrap any integer in this form, since x is of so high quality and was precisely manufactured in a reputable Integer-Shop in Switzerland, which is certified for upto 42-dimensional geometry, x is guaranteed to be representable this way.

Input The birthday present $1 \leq x \leq 10^9$.

Output Print one line containing a and b ($-10^{18} \leq a, b \leq 10^{18}$). If there are multiple possibilities, print any of them.

Sample input	Sample output
33	1 -2
275	2 -3

[1] https://en.wikipedia.org/wiki/5-cube