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Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

The weight balance is one of the oldest mechanical devices used by humans. Its origins can be traced back to ancient civilizations such as the Egyptians, who used simple balances to measure commodities like grain.

A weight balance typically consists of a beam supported at its center, with two pans suspended from either end. The object to be weighed is placed on one pan, while standard weight stones are placed on the other until equilibrium is reached, indicating that the weights are equal.

Stones can also be placed on the same pan as the object. If you place the object on the right pan, place stones totaling weight X on the left pan, stones totaling weight Y on the right pan and the balance reaches equilibrium, then the weight of the object is $X - Y$.

For example, if the balance reaches equilibrium while having a stone of weight 9 on the left pan and a stone of weight 3 and an object on the right pan, then the weight of the object is $9 - 3 = 6$.

You want to check if the weight of an object is exactly W. You have placed it on the right pan and need to place stones on both pans to reach equilibrium.

You have 999999937 stones. The first stone has a weight of 1, and each subsequent stone is 3 times heavier than the previous one. So, the weights of the first five stones are 1, 3, 9, 27 and 81.

You have to find two integers X and Y such that you can place stones totaling weight X and Y on the left and right pan respectively and $X - Y = W$.

Check the sample test cases and see the constructions for a better understanding.

Finally, all the events are taking place on Earth, so weight and mass are proportional.

Input

The first line of the input contains a single positive integer t ($1 \le t \le 10^5$) — the number of test cases. Then t test cases follow.

Each test case contains only one integer in a line W ($1 \le W \le 2 \times 10^9$) — the expected weight.

Output

For each test case, output two space-separated integers in a line X and Y — the total weight of stones on the left and right pan respectively.

Since the object is on the right pan, X must be greater than Y.

If there are multiple correct combinations, you may output any of them.

If it is not possible to reach equilibrium, output 1 -1".

Examples

standard input	standard output
2 4 6	4 0 9 3
1 100	109 9

Note

The constructions of the first test cases are illustrated in the following image: