A **good number** is a number that can be expressed as a sum of powers of 3 without duplicates.

For example:

- 10 is a **good number** since 10=3^0 + 3^2
- 18 is not a **good number**, since it can't be written as sum of powers of 3 without duplicates, 18= 3^2 + 3^2
- 3 is a **good number**

Bob has got some large number n. n could be good or not. Alice asked Bob to find the smallest **good number** m satisfying the relation n<=m.

As Bob is really bad at math, he asked for your help.

Input format and constraints:

- An integer t inclusively between 1 and 1000 representing the number of testcases.
- t lines follow where each line contains an integer n inclusively between 1 and 2x10^18

Output format: For each testcase case, print the required number m on a separate line.

Sample input:

7

2

6

13

14

3620

10000

1000000000000000000

Sample Output:

3

9

13

27

6561

19683

1350851717672992089