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Lucky lucky number

Problem Code: **CHEFLUCK**

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Every great chef knows that lucky numbers are positive integers whose decimal representations contain only the lucky digits 4 and 7. For example, numbers 47, 744, 4 are lucky and 5, 17, 467 are not.

Our chef has recently returned from the Lucky country. He observed that every restaurant in the Lucky country had a lucky number as its name. He believes that having a lucky number as a restaurant name can indeed turn out to be very lucky.

Our chef believes that it is possible to make a lucky number having N digits even luckier. Any number following the rules below is called Lucky lucky number -

1. The number contains only digits 4 and 7.
2. Count of digit 4 in the number should be divisible by 7.
3. Count of digit 7 in the number should be divisible by 4.

Help our chef to compute the count of digit 4 in the **smallest** Lucky lucky number having N digits.

Input

First line contains T, number of test cases. Each of the next T lines contains a number N, the number of digits in the Lucky lucky number to be formed.

1<=T<=1000
1<=N<=1000000000 (10^9)

Output

If it is not possible to form a Lucky lucky number having N digits, output -1. Otherwise, output the count of digit 4 in the smallest Lucky lucky number having N digits.

Example

Input :

5
7
4
11
1
15


Output :

7
0
7
-1
7

Explanation

For the last test case, N = 15, the smallest lucky lucky number is 444444477777777. The count of digit 4 is 7.

All submissions for this problem are available.

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Editorial:	https://discuss.codechef.com/problems/CHEFLUCK
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