NOIP '21 P1 - Saying Numbers

Time limit: 1.0s   **Memory limit:** 512M

Buzz is a game where people count up from 1 but skip multiples of 7 and numbers that contain 7.

R and J think Buzz is too easy for them so they make it stronger. Now any number that is a multiple of some number that contains 7 must be skipped.

Formally, let $p(x)$ be 1 if x contains 7 in base 10 and 0 otherwise. A positive integer x must be skipped when $x = yz$ for some positive integers y and z such that $p(y) = 1$.

For example, if R says 6, because 7 is skipped, J should say 8 after 6. If R says 33, because $34 = 17 \times 2$ and $35 = 7 \times 5$, J should say 36 after 33. If R says 69, because all numbers from 70 to 79 contain 7, J should say 80 after 69.

Input Specification

The first line contains a positive integer T representing the number of test cases.

Each of the next T lines contains a positive integer x said by R.

Output Specification

Output one line for each test case.

If R says a number that should be skipped, output `-1`. Otherwise output the number J should say after R.

Sample Input 1

```
4
6
33
69
300
```

Sample Output 1

```
8
36
80
-1
```

Sample 1 Explanation

The first 3 test cases are explained in the statement. For the 4th test case, $300 = 75 \times 4$. Because 75 contains 7, 300 should be skipped.

Sample Input 2

```
5
90
99
106
114
169
```

Sample Output 2

```
92
100
109
-1
180
```

Additional Samples

Additional samples can be found .

Constraints

For 10% of the test cases, $T \leq 10$, $x \leq 100$.

For 30% of the test cases, $T \leq 100$, $x \leq 1\,000$.

For 50% of the test cases, $T \leq 1\,000$, $x \leq 10\,000$.

For 70% of the test cases, $T \leq 10\,000$, $x \leq 10^5$.

For 100% of the test cases, $T \leq 2 \times 10^5$, $x \leq 10^7$.