Problem B. Dislike of Threes

Time limit 1000 ms
Mem limit 262144 kB

Polycarp doesn't like integers that are divisible by 3 or end with the digit 3 in their decimal representation. Integers that meet both conditions are disliked by Polycarp, too.

Polycarp starts to write out the positive (greater than 0) integers which he likes: $1, 2, 4, 5, 7, 8, 10, 11, 14, 16, \ldots$. Output the k-th element of this sequence (the elements are numbered from 1).

Input

The first line contains one integer t ($1 \le t \le 100$) — the number of test cases. Then t test cases follow.

Each test case consists of one line containing one integer k ($1 \le k \le 1000$).

Output

For each test case, output in a separate line one integer x — the k-th element of the sequence that was written out by Polycarp.

Examples

Input	Output
10 1 2 3 4 5 6 7 8 9 1000	1 2 4 5 7 8 10 11 14 1666