

Bazinga!

Sheldon is very proud of his intelligence. To test his intelligence Howard designs a puzzle and asks him to solve it. The puzzle consists of special numbers which can be obtained by multiplying exactly two distinct prime numbers. Sheldon has to tell Howard what is the Kth element of this series. Help him.

For Example 6, 10, 14, 15 are the first few members of this series whereas 4, 9 and 12 are not.

Input

First line specifies T, the number of test cases.

Next T lines each gives 1 number, K

Output

Output 1 line for each test case giving the Kth element of this series.

Constraints

$1 \leq T \leq 1000$

$1 \leq K \leq 2000000$

Example

Input:

4
2
3
5
7

Output:

10
14
21
26