

1097 – Lucky Number

Lucky numbers are defined by a variation of the well-known sieve of Eratosthenes. Beginning with the natural numbers strike out all even ones, leaving the odd numbers **1, 3, 5, 7, 9, 11, 13, ...** The second number is **3**, next strike out every third number, leaving **1, 3, 7, 9, 13, ...** The third number is **7**, next strike out every seventh number and continue this process infinite number of times. The numbers surviving are called lucky numbers. The first few lucky numbers are:

1, 3, 7, 9, 13, 15, 21, 25, 31, 33, ...

In this problem your task is to find the n^{th} lucky number where n is given in input.

Input

Input starts with an integer T (≤ 10000), denoting the number of test cases.

Each case contains an integer n ($1 \leq n \leq 10^5$).

Output

For each case, print the case number and the n^{th} lucky number.

Sample Input	Output for Sample Input
2	Case 1: 3
2	Case 2: 1429431
100000	