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 $\mathbf{n}^{th}$ 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** $\mathbf{(1 \leq n \leq 10^5)}$.

Output

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

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