Queen bees mate early in their lives and only attend one mating flight. After several matings during this flight, a queen stores up to 100 million sperm within her oviducts. However, only five to six million are stored within the queen’s spermatheca. The queen uses only a few of these sperm at a time in order to fertilize eggs throughout her life. If a queen runs out of sperm in her lifetime, new generations of queens will mate and produce their own colonies.

Honey bee queens control the gender of their offspring: as eggs pass through the ovary into the oviduct, a queen can determine whether a particular egg is fertilized or not. Unfertilized eggs become drone honey bees, while fertilized eggs develop into female workers and queens.

So it turns out that drone bees have only a mother, while worker bees and queen bees have both a mother and a father.

Your task is to calculate the number of **n**-th order parents of a drone.

**Note: 1-st order parents are the drone’s direct parents, i.e. his mother, 2-nd order parents are the parents of his parents, i.e. the parents of his mother (not counting his mother), etc. We will assume that each drone has one 0-th order parent – the drone itself.**

**Input**

The first row of the file drones.in contains a single integer **Q** – the number of queries which will be performed.

Each of the next **Q** rows contains a single integer **n**.

**Output**

In the output file dornes.out for each query, print the number of **n**-th order parents a drone has on a newline. Since that number can be quite large, print your answer modulo

264 - 59

**Constraints**

1 ≤ Q ≤ 105

1 ≤ *n* ≤ 105

**Time limit: 1.5 sec**

**Memory limit: 256 MB**

**Example test**

|  |  |
| --- | --- |
| **Input (drones.in)** | **Output (drones.out)** |
| 4  1  6  9  10 | 1  13  55  89 |