7306 Primorial vs LCM

Given N ($2 \leq N \leq 10^{14}$), what is the quotient of $LCM(1, 2, 3, \ldots, N)$ divided by multiple of all primes up to N. As the result might be too big, output it's *modulo* by 1000000007.

For example, when $N = 5$, the result is $LCM(1, 2, 3, 4, 5)/(2 * 3 * 5) = 60/30 = 2$.

Note that LCM stands for *Lowest* or *Least Common Multiple*.

Input

The first line of the input is T ($T \leq 50000$), then T test cases follows in next T lines. Each line contains an integer N ($2 \leq N \leq 100000000000000$ or 10^{14}). The meaning of N is given in the problem statement.

Output

For each test case print a line in '`Case` x`:` S' format where x is case number and S is the quotient *modulo* by 1000000007.

Sample Input

```
10
2
3
4
5
6
7
8
9
10
1000
```

Sample Output

```
Case 1: 1
Case 2: 1
Case 3: 2
Case 4: 2
Case 5: 2
Case 6: 2
Case 7: 4
Case 8: 12
Case 9: 12
Case 10: 744593350
```