

Jackson House

- محدودیت زمان: ۱ ثانیه
- محدودیت حافظه: ۲۵۶ مگابایت

Jackson, after witnessing the advancements in the world of technology, decided to sell his small cozy house and enroll in the programming-and-algorithm micromaster. He came across an interesting algorithm that he needed to analyze and solve the problem related to it, in order to pass the exam at this stage of the course. The pseudocode of this algorithm is as follows:

```
input: a permutation  $\pi = \langle \pi_1, \pi_2, \dots, \pi_n \rangle$  of numbers  $\{1, 2, \dots, n\}$   
while  $\pi$  is changing during this iteration:  
  for  $i := n$  downto 2:  
    if  $\pi_i < \pi_{\lfloor i/2 \rfloor}$ :  
      swap( $\pi_i, \pi_{\lfloor i/2 \rfloor}$ )
```

He wants to know for how many permutations π of length n from the possible $n!$ ones, the final permutation will be sorted after running this algorithm.

ورودی

The first line contains an integer t , the number of test cases.

Each of the next t lines contains an integer n_i representing the length of the permutation for the i^{th} test case.

$$1 \leq t \leq 100$$

$$2 \leq n_i \leq 109$$

خروجی

Output t lines. On the i^{th} line, print the number of permutations of length n_i which will be sorted after running the provided algorithm on it. Since the output could be very large, output the result modulo $10^9 + 7$.

مثال

ورودی نمونه ۱

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3	
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خروجی نمونه ۱

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