

# Fast Factorial Calculator

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**quantum** is not in a good mood today, so he has decided to torment people. He wants you to write a large factorial calculator. More specifically, he wants you to calculate very very **very** large factorials. He wishes you luck.

## Input Specification

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The first line of input contains the integer  $N$ ,  $0 \leq N \leq 1\,000$ , the number of cases to follow.

The next  $N$  lines will contain an integer  $n$ , such that  $0 \leq n \leq 2^{63}$ , whose factorial you are to calculate.

## Output Specification

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For every integer  $n$ , you are to output  $n! \bmod 2^{32}$ .

## Sample Input

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```
2
5
13
```

## Sample Output

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```
120
1932053504
```