Fast Factorial Calculator

Time limit: 0.6s **Memory limit:** 64M

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

The first line of input will contain 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

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

Sample Input

```
2
5
13
```

Sample Output

```
120
1932053504
```