# Fast Exponentiation

Time Limit: 3 Second
Memory Limit: 256 MB

Given two numbers $n$ and $k$ ($1 \leq n, k \leq 10^{18}$), output $n^k$ modulo $10^9 + 7$.

## Input

The first line contains a single integer $t$ ($1 \leq t \leq 10^5$) - the number of test cases.

The following $t$ lines describe the test cases. For each test case, the only line of input contains two integers $n$ and $k$ ($1 \leq n, k \leq 10^{18}$), as described in the problem statement.

## Output

For each test case, output a single integer denoting the answer.

## Sample Inputs

```
3
2 31
1 1000000000000000000
114514 1919810
```

## Sample Outputs

```
147483634
1
390518425
```