

## Problem K. Random

Input file:            **standard input**  
Output file:         **standard output**  
Time limit:          1 second  
Memory limit:       64 megabytes

$N$  numbers, randomly generated between  $[0, 1]$

Make  $M$  operation,  $\frac{1}{2}$  probability to delete the maximum value,  $\frac{1}{2}$  probability to delete the minimum value

Calculate the sum of expected value module  $10^9 + 7$

### Input

Each test contains multiple test cases. The first line contains the number of test cases  $T$  ( $1 \leq T \leq 10000$ ). Description of the test cases follows.

The first line of each test case contains two integers  $n, m$

$1 \leq m \leq n \leq 10^9$

### Output

For each test case, print one integer — the answer to the problem.

### Example

standard input	standard output
2	0
2 2	1
3 1	