Permutations and cycles P99557_en

Given two natural numbers n and k, let $f(n,k)$ denote the number of permutations with n elements, and such that there are exactly k cycles, all them of length at least 2. Implement a dynamic programming code to compute $f(n,k)$.

Input

Input consists of several cases, each with two natural numbers n and k. You can assume $2 \leq n \leq 1000$ and $1 \leq k \leq \lfloor n/2 \rfloor$.

Output

For every case, print $f(n,k)$. Because that number can become very large, use @long long@'s and make the computations modulo $10^9 + 7$.

Hint

You can compute $f(n,k)$ just adding two "recursive calls".

Sample input 1

```
2 1
3 1
4 1
4 2
5 1
5 2
20 5
100 10
1000 1
1000 2
1000 500
```

Sample output 1

```
1
2
6
3
24
20
796437723
673801497
756641425
592422688
164644882
```

Problem information

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