Problem A. Hard to Compare

Input file:	*standard input*
Output file:	*standard output*
Time limit:	4 seconds
Memory limit:	**6** mebibytes

Please pay attention to the unusual memory limit.

Let $f(n, k, x)$, where $n > k > x \geq 1$, denote the number of integer arrays of length n that contain integers from 1 to x exactly once, contain integers from $x + 1$ to k at least twice, and do not contain any other integers. For example, $f(7, 4, 2) = 840$, as there are 7 ways to place 1, then there are 6 ways to place 2, and there are 20 ways to place 3 and 4 in the five remaining spots such that both 3 and 4 appear at least twice.

You are given integers n and k. Find the 9 largest values among $f(n, k, 1), f(n, k, 2), \ldots, f(n, k, k - 1)$, and print their sum modulo $10^9 + 7$.

Input

The input contains one or more test cases. The first line contains the number of test cases t ($1 \leq t \leq 10^6$).

The only line of each test case contains two integers n and k ($10^4 \geq n > k \geq 10$).

Output

For each test case, output one integer: the sum of 9 largest values modulo $10^9 + 7$.

Example

standard input	*standard output*
3 17 12 88 24 6949 4513	567627977 225618886 360966919

Note

In the first test case, $f(17, 12, 1) = f(17, 12, 2) = \ldots = f(17, 12, 6) = 0$, so the answer is just the sum of the remaining nonzero values.