

Problem CONSPIRACY: International C Programmers Conspiracy

Forget about all those conspiracies, I want world dominance for myself and I'll take it. The concept is ingenious: Establish small elite groups on different continents in order to take over the critical infrastructure – et voilà!

Since the only thing I can do is writing C-code, I decided to call my approach the *International C Programmers Conspiracy (ICPC)*. Besides the master plan, there are many minor details to be considered. One thing is the application procedure for becoming a member of the elite groups: Eligible is every one who can solve an ancient riddle (actually, it's not that ancient. I've made it up several days ago, but I won't tell the applicants):

The Grand Master of the International C Programmers Conspiracy once had n different letters that should in a neat way be written on k rings for His most highly decorated C-coders. Each letter may be used at most once. There is a large number of possible distributions of the n letters on the k rings. Since His cache was not large enough to keep all of these possible distributions in mind, He wrote a smart program enumerating only *distinct* possibilities. As a matter of course, no ring should be without letters. Since He planned to engrave the letter combinations on a ring, he has to count combinations that are unique up to cyclic shifts only once (so the sequences ABC and BCA are the same and not counted twice). Additionally, the typeface of the engravings made clear where the top line and the bottom line of the letters are, i.e., it is not possible to mix up the sequences IXO and OXI by flipping the ring.

How many possibilities did His program output?

Input

The first line holds the number of test cases c , $c \leq 1,000$. The following c lines consist of two integer numbers n and k , separated by a single space ($1 \leq k \leq n \leq 20$).

Output

For every test case, compute the number of possible distributions, as explained in the ancient riddle above and print the number of possibilities on a line of its own. Note that the result can get quite large.

Sample Input 1

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2
4 1
4 2
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Sample Output 1

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6
11
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