Consider a sequence of n integers $< 1\ 2\ 3\ 4\ \ldots\ n >$. Since all the values are distinct, we know that there are n factorial permutations. A permutation is called ***K-transformed*** if the absolute difference between the original position and the new position of every element is at most K.

Given n and K, you have to find out the total number of ***K-transformed*** permutations.

Example: $n = 4$, $K = 2$

	1 2 3 4 (position)	**Valid**	**Annotation**
P_1	1 2 3 4	Yes	The original sequence. All the elements are in their original position
P_2	1 2 4 3	Yes	3 and 4 are reordered, but each is shifted by 1 position only.
P_3	1 3 2 4	Yes	
P_4	1 3 4 2	Yes	2 is shifted by 2 positions. $2 \leq K$, so it's a valid one.
P_5	1 4 2 3	Yes	
P_6	1 4 3 2	Yes	
P_7	2 1 3 4	Yes	
P_8	2 1 4 3	Yes	
P_9	2 3 1 4	Yes	
P_{10}	2 3 4 1	No	1 is shifted by 3 positions. $3 > K$ and so this is an invalid permutation
P_{11}	2 4 1 3	Yes	
P_{12}	2 4 3 1	No	
P_{13}	3 1 2 4	Yes	
P_{14}	3 1 4 2	Yes	
P_{15}	3 2 1 4	Yes	
P_{16}	3 2 4 1	No	
P_{17}	3 4 1 2	Yes	
P_{18}	3 4 2 1	No	
P_{19}	4 1 2 3	No	4 is shifted by 3 positions. $3 > K$ and so this is also invalid
P_{20}	4 1 3 2	No	
P_{21}	4 2 1 3	No	
P_{22}	4 2 3 1	No	
P_{23}	4 3 1 2	No	
P_{24}	4 3 2 1	No	Here, both 4 and 1 are breaking the property.

So, for the above case, there are 14 ***2-transformed*** permutations.

Input

The first line of input is an integer T ($T < 20$) that indicates the number of test cases. Each case consists of a line containing two integers n and K. ($1 \leq n \leq 10^9$) and ($0 \leq K \leq 3$).

Output

For each case, output the case number first followed by the required result. Since the result could be huge, output result modulo 73405.

Sample Input

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3
4 2
100 0
10 1
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Sample Output

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Case 1: 14
Case 2: 1
Case 3: 89
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