B

K-Transformed Permutations

Input: Standard Input
Output: Standard Output

Consider a sequence of **n** integers <1 2 3 4 … **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. $2 \le K$, 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**. ($1 \le \mathbf{n} \le 10^9$) and ($0 \le \mathbf{K} \le 3$).

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	Output for Sample Input
3 4 2 100 0 10 1	Case 1: 14 Case 2: 1 Case 3: 89

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