Beautiful Sets



Consider a set, S, consisting of k integers. The set is *beautiful* if *at least one* of the following conditions holds true for every $x \in S$:

1.
$$x - 1 \in S$$

2.
$$x + 1 \in S$$

For example, $S = \{1, 2, 50, 51\}$ is *beautiful* but $S = \{1, 5, 9\}$ is *not beautiful*. Given two integers, n and k, can you find the number of different k-element beautiful sets you can create using integers $\in [1, n]$?

Perform q queries where each query i consists of some n_i and k_i . For each query:

- Find the number of different beautiful sets having exactly k elements that can be generated using integers in the inclusive range from 1 to n.
- Print the number of beautiful sets, modulo $10^9 + 7$, on a new line.

Input Format

The first line contains an integer, q, denoting the number of gueries.

Each line i of the q subsequent lines consists of two space-separated positive integers describing the respective values of n_i and k_i for the query.

Constraints

- $1 \le q \le 10$
- $1 \le n \le 10^6$
- 1 < k < n

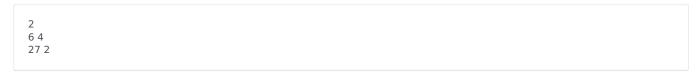
Subtasks

• $1 \le n \le 1000$ for 40% of the maximum score.

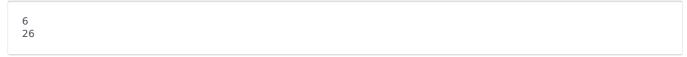
Output Format

For each query, print the number of different beautiful sets of size k that can be generated using integers in the inclusive range from 1 to n on a new line. As the answers to these queries can be quite large, each answer must be modulo $10^9 + 7$.

Sample Input



Sample Output



Explanation

For the first query, the beautiful sets of size k=4 we can create using numbers from ${\bf 1}$ to n=6 are shown below:

- {2,3,4,5}
- {3,4,5,6}
- {1,2,4,5}
- {1,2,5,6}
- {2,3,5,6}

As there are are six such sets, we print the result of $\,6~\%~(10^9+7)=6\,$ on a new line.