

Problem 1007.Count Set

Given a permutation p of $\{1, 2, \dots, n\}$ and a non-negative integer k . Please calculate the number of subsets T of $\{1, 2, 3, 4, \dots, n\}$ satisfying $|T| = k$ and $|P(T) \cap T| = 0$.

Where $P(T)$ means $P(T) = \{y | y = p_x, x \in T\}$.

Input

Each test contains multiple test cases. The first line contains the number of test cases ($1 \leq T \leq 15$). Description of the test cases follows.

The first line contains two separated integers n, k .

The second line contains n integers $p_1, p_2, \dots, p_n$ ($1 \leq p_i \leq n$), denoting the given permutation.

$1 \leq n \leq 5 \times 10^5, 0 \leq k \leq n$.

For all test cases, $\sum n \leq 5 \times 10^6$

Output

For each test case:

Print one integer in a line, denoting the answer number modulo 998 244 353.

Example Input

```
3
5 1
5 3 2 1 4
5 2
2 5 1 3 4
10 3
10 9 3 8 6 4 5 7 2 1
```

Example Output

```
5
5
40
```