French Fries Festival

Description

French Fries Festival is the most important festival in French. French Fries Festival starts on 7/17 every year and lasts for 365 days(Today(2016/7/16) is not on French Fries Festival!).

During French Fries Festival, there will be lots of free french fries everywhere. As a big fan of French Fries Festival, you don't want to miss any french fries this year. Thus, as next French Fries Festival approaching, you have gotten the information about the plan of French Fries Festival. Actually, the french fries will be given in plates on a long table. And, counted from left side, number of french fries in i-th plate is f_i

After getting the information, you decided to grab some french fries before any other one. First, you will choose a range from l_i-th plates to r_i-th plates and take all of the french fries from those plates. However, you think that it's too flagrant and everyone could discover your greed. Thus, you choose another range l'_i to r'_i and decide not to take the french fries from those plates. After that, suppose you will take $a_1, a_2, \ldots, a_k$ from each plates(among l_i-th to r_i-th, but not between l'_i-th to r'_i-th), your happiness will be $1 \times \prod_{i=1}^{k} a_i = 1 \times a_1 \times a_2 \times \ldots \times a_k$.

Since you want to maximize your happiness, you will decide several plans. But, calculating the happiness isn't a easy work(for brain). Thus, you are going to write a program to help yourself calculate the happiness.

Input

The first line contains an integer T indicating the total number of test cases. For each test case: First line contains two positive integer N and M. Second line contain N space separated positive integer f_i. Following M lines, each contain 4 positive integers l_i, r_i, l'_i, r'_i.

- $1 \leq T \leq 100$
- $1 \leq N, M \leq 10^5$
- $0 \leq f_i \leq 10^9$
- $l_i \leq l'_i \leq r'_i \leq r_i$
- There will be at most 10 testcases with $N, M \geq 100$

Output

For each test case, please output M line. Each line indicates the happiness. Since the happiness may be quite large, output it modules $1000000007(10^9 + 7)$.

Sample Input

```
2
5 2
1 2 3 4 5
1 5 1 4
1 4 2 4
10 1
2 2 2 2 2 2 2 2 2 2
1 10 2 9
```

Sample Output

```
5
1
4
```