Crossroads

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	1024 megabytes

Given n vertical lines, where the i-th line is $x = a_i$, and also m horizontal lines, where the i-th line is $y = b_i$, it costs t_i units of time to move 1 unit of distance along the i-th vertical line, and it costs t_0 units of time to move 1 unit of distance along any horizontal line.

Let $f(i, j)$ be the minimum time needed to get from $(0, 0)$ to (a_i, b_j) by moving only along the vertical and horizontal lines. You need to answer q queries, where each query is represented as four integers l, r, d, and u, and you need to calculate

$$\sum_{i=l}^{r} \sum_{j=d}^{u} f(i, j)$$

Since the answers may be large, output them modulo 998 244 353.

Input

There are multiple test cases. The first line of the input contains an integer T ($1 \le T \le 10^4$), indicating the number of test cases. For each test case:

The first line contains three integers n, m, and q ($1 \le n, m, q \le 2 \times 10^5$), indicating the numbers of vertical lines, horizontal lines, and queries.

The second line contains n integers $a_1, a_2, \ldots, a_n$ ($0 = a_1 < a_2 < \cdots < a_n \le 10^9$), indicating the x-coordinates of the vertical lines.

The third line contains m integers $b_1, b_2, \ldots, b_m$ ($0 = b_1 < b_2 < \cdots < b_m \le 10^9$), indicating the y-coordinates of the horizontal lines.

The fourth line contains n integers $t_1, t_2, \ldots, t_n$ ($1 \le t_i \le 10^9$), where t_i indicates the time needed to move 1 unit of distance along the i-th vertical line.

The fifth line contains one integer t_0 ($1 \le t_0 \le 10^9$), indicating the time needed to move 1 unit of distance along any horizontal line.

For the following q lines, the i-th line contains four integers l_i, r_i, d_i, and u_i ($1 \le l_i \le r_i \le n$, $1 \le d_i \le u_i \le m$), indicating the i-th query.

It is guaranteed that the sum of n, the sum of m, and the sum of q over all test cases do not exceed 2×10^5.

Output

For each test case, output one line containing q integers, where the i-th integer is the answer to the i-th query modulo 998 244 353.

Example

standard input	standard output
1 3 2 3 0 2 10 0 3 100 2 1 1 1 3 1 2 2 3 2 2 1 1 1 1	43 21 0