Problem F. Period Sequence

Input file:	*standard input*
Output file:	*standard output*
Time limit:	6 seconds
Memory limit:	256 mebibytes

Chiaki has n integers $s_0, s_1, \ldots, s_{n-1}$. She has defined an infinite sequence S in the following way: $S_k = s_{k \bmod n} + n \cdot \lfloor \frac{k}{n} \rfloor$, where k is a zero based index.

For a continuous subsequence $S[l..r]$, let cnt_x be the number of occurrence of x in the subsequence $S[l..r]$. Then the value of $S[l..r]$ is defined as follows

$$f(l, r) = \sum_x x \cdot cnt_x^2$$

For two integers a and b ($a \leq b$), Chiaki would like to find the value of

$$\left(\sum_{a \leq l \leq r \leq b} f(l, r) \right) \bmod (10^9 + 7)$$

Input

There are multiple test cases. The first line of input contains an integer T, indicating the number of test cases. For each test case:

The first line contains three integers n, a and b ($1 \leq n \leq 2000, 0 \leq a \leq b \leq 10^{18}$).

The second line contains n integers $s_0, s_1, \ldots, s_{n-1}$ ($0 \leq s_i \leq 10^9$).

It is guaranteed that the sum of all n does not exceed $2 \cdot 10^4$.

Output

For each test case, output an integer denoting the answer.

Example

standard input	standard output
4	179
3 2 6	268
2 1 3	369
5 2 7	437
2 1 5 1 2	
4 4 8	
2 1 5 17	
3 5 9	
2 5 2	