7563 Coprimes

Motherboard, the evil mother of our *Farzi coder* has gifted him an Array $A[]$ of size N. She wanted to test the coding skills of her son. So she asked him Q questions of the form: given three integers (L, R, K), find number of special subsets of size K of the subarray $A[L]$, $A[L+1]$, ..., $A[R]$. A set is special if the greatest number which can divide all theelements of the set is 1.

Please help our *Farzi Coder* in solving the task. As the answer can be large, print it modulo 1000000007 $(10^9 + 7)$.

Input

The input file contains several test cases, each of them as described below.

The first line of each file has the integer N denoting the size of array A

Next line contains N space separated integers — $A[1]$, $A[2]$, ..., $A[N]$.

Next line contains one integer Q denoting the number of queries on the array.

Next Q lines contain 3 space separated integers each, 'L R K' (without quotes).

Output

For each test case, and for each query, print the required answer, on a line by itself.

Constraints:

- $1 \leq N \leq 50000$
- $1 \leq L \leq R \leq N$
- $1 \leq Q \leq 50000$
- $1 \leq A[i] \leq 10000$
- $1 \leq K \leq R - L + 1$

Explanation:

For query 1, the special sets of size 2 between the indices 1 and 5 are: {1, 2} {1, 3} {1, 4} {1, 5} {2, 3} {2, 5} {3, 4} {3, 5} {4, 5}

Sample Input

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

Sample Output

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9
109
205
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