



02 : 03 : 10  
HRS MIN SEC

## August Easy '21

LIVE

Aug 07, 2021, 09:30 AM IST - Aug 07, 2021, 12:30 PM IST

INSTRUCTIONS

PROBLEMS

SUBMISSIONS

LEADERBOARD

ANALYTICS

JUDGE

← Problems / Minimize a product

### Minimize a product

Max. score: 100

You are given an array  $A$  of  $N$  integers.

Also, you are given  $Q$  queries of the following type:

- **1  $x$   $v$** : Change the value of the element at  $x^{th}$  index to  $v$  i.e. set  $A[x] = v$ .
- **2  $l$   $r$** : Determine the number of pairs  $(i, j)$  such that:
  - $l \leq i < j \leq r$
  - $A[i] \times A[j]$  is minimum possible among all such possible pairs of elements

Your task is to determine the sum of answers for queries of Type **2** over all  $Q$  queries.

#### Note

- Assume **1**-based indexing.
- The sum can be very large, print the output in modulo  $10^9 + 7$ .

#### Input format

- The first line contains an integer  $T$  that denotes the number of test cases.
- For each test case:
  - The first line contains two space-separated integers that denotes  $N$   $Q$ .
  - The next line contains  $N$  space-separated integers that denotes the array  $A$ .
  - The next  $Q$  lines contain queries.

#### Output format

For each test case, print an integer denoting the sum of the answer for all the queries of Type **2** in a new line.

#### Constraints

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$$1 \leq T \leq 10$$

$$1 \leq N, Q \leq 10^5$$

$$1 \leq l < r \leq N$$

$$1 \leq x \leq N$$

$$1 \leq v, A[i] \leq 10^6$$

SAMPLE INPUT



```
1
5 3
5 2 3 6 3
2 1 3
1 4 3
2 1 5
```

SAMPLE OUTPUT



```
4
```

### Explanation

For Query 1:

- Pair **(2, 3)** satisfy the required condition as  $A[2] \times A[3] = 6$  is the minimum possible product that can be achieved.

After Query 2:

- $A[4] = 3$

For Query 3:

- Pair **(3, 4), (4, 5), (3, 5)** satisfy the required condition as  $A[3] \times A[4] = A[3] \times A[5] = A[4] \times A[5] = 9$  is the minimum possible product that can be achieved.

Hence, the required answer is  $1 + 3 = 4$ .

**Time Limit:** 3.0 sec(s) for each input file.

**Memory Limit:** 256 MB

**Source Limit:** 1024 KB

**Marking Scheme:** Score is assigned if any testcase passes.

**Allowed Languages:** Bash, C, C++, C++14, C++17, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, Java 14, JavaScript(Rhino), JavaScript(Node.js), Julia, Kotlin, Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, Python 3.8, Racket, Ruby, Rust, Scala, Swift-4.1, Swift, TypeScript, Visual Basic

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### CODE EDITOR

Save

C (gcc 5.4.0)



```
1  /*
2  // Sample code to perform I/O:
3  #include <stdio.h>
4
5  int main(){
6      int num;
7      scanf("%d", &num);           // Reading input from STDIN
8      printf("Input number is %d.\n", num); // Writing output to STDOUT
9  }
10
11 // Warning: Printing unwanted or ill-formatted data to output will cause
12 // the test cases to fail
13 */
14 // Write your code here
15
```

1:1 vscode

☒ Provide custom input

COMPILE &amp; TEST

SUBMIT

**Tip:** You can submit any number of times you want. Your best submission is considered for computing total score.

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