

## Another Boring Problem (boring)


Luca has an array  $a$  of length  $N$ . Luca need to process  $Q$  queries. Each query is one of two types:

- 1  $x \rightarrow$  what is the value of  $a_x$  modulo  $10^9 + 7$ ?
- 2  $x, y, b, c \rightarrow$  for every  $i$  in the range  $[x, y]$ ,  $a_i$  becomes  $\max(a_i, b \cdot i^c)$ .



Figure 1: She's bored as well.

Help Luca find the answer to each type 1 query!

 Among the attachments of this task you may find a template file `boring.*` with a sample incomplete implementation.


### Input

The first line contains the only integer  $N$ . The second line contains  $N$  integers  $a_i$ .

The third line contains the only integer  $Q$ . The following  $Q$  lines can be of the kind 1  $x$  or 2  $x y b c$ , depending on which kind of query they represent.

### Output

For every 1  $x$  query in the input, you should write a line with an integer: the value of  $a_x$  modulo  $10^9 + 7$ .







 The *modulo* operation ( $a \bmod m$ ) can be written in C/C++/Python as `(a % m)` and in Pascal as `(a mod m)`. To avoid the *integer overflow* error, remember to reduce all partial results through the modulus, and not just the final result!  
Notice that if  $x < 10^9 + 7$ , then  $2x$  fits into a C/C++ `int` and Pascal `longint`.

## Constraints

- $1 \leq N \leq 100\,000$ .
- $1 \leq a_i \leq 100\,000$  for each  $i = 1 \dots N$ .
- $1 \leq Q \leq 200\,000$ .
- $1 \leq x \leq N$  for each query of the first kind.
- $1 \leq x, y \leq N$  and  $1 \leq b, c \leq 100\,000$  for each query of the second kind.

## Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

- **Subtask 1** (0 points)      Examples.  

- **Subtask 2** (20 points)      Every number, except for  $Q$ , is at most 10.  

- **Subtask 3** (25 points)       $c = 1$ .  

- **Subtask 4** (15 points)       $N \leq 1000$  and  $Q \leq 100\,000$ .  

- **Subtask 5** (20 points)       $N \leq 50\,000$  and  $Q \leq 100\,000$ .  

- **Subtask 6** (20 points)      No additional limitations.  


## Examples

| input  | output  |
|--|---|
| 10<br>5 3 7 8 3 9 10 10 1 2<br>15<br>1 7<br>2 1 5 3 3<br>1 5<br>1 4<br>1 1<br>2 6 10 2 2<br>1 6<br>1 7<br>1 10<br>2 1 10 10 10<br>1 1<br>1 2<br>1 10<br>1 7<br>1 3 | 10<br>375<br>192<br>5<br>72<br>98<br>200<br>10<br>10240<br>999999307<br>824752476<br>590490 |

## Explanation

In the **first sample case** the array contains 10 elements, which initially are:

5, 3, 7, 8, 3, 9, 10, 10, 1, 2

The first query asks the value of the 7th element (which is the first 10).

The next query updates the values of the elements in positions 1 to 5. After the update the array contains:

5, 24, 81, 192, 375, 9, 10, 10, 1, 2

After the second query of type 2, the array contains:

5, 24, 81, 192, 375, 72, 98, 128, 162, 200

After the last update of type 2, the array contains:

10, 10240, 590490, 10485760, 97656250, 604661760, 2824752490, 10737418240, 34867844010, 1000000000000