

## Problem B. Bethlehem: Birthplace of Jesus

Input file: standard input  
Output file: standard output  
Balloon Color: Bronze

*Bethlehem*, located in the West Bank of Palestine, is celebrated as the birthplace of Jesus Christ and holds significant religious importance for Christians worldwide. Home to the Church of the Nativity, a UNESCO World Heritage site, Bethlehem's history spans thousands of years. Beyond its religious significance, the city boasts a rich tradition of Palestinian art, music, handicrafts, picturesque landscapes, and olive groves, attracting pilgrims and tourists alike.

Hamoya wants to challenge his students with difficult tasks because he loves them.

The task is as follows:

Given an array of  $N$  integers, you are asked to answer  $Q$  queries with two types:

1. You are given three integers  $L R X$ . Update the array such that  $a_i := a_i + x$  for each  $i (L \leq i \leq R)$
2. You are given two integers  $L R$ . Calculate  $\sum_{i=L}^R a_i^3$

Note: Since the answer can be large, you should print the result modulo  $10^9 + 7$ .

### Input

In the first line of input, two integers  $N$  ( $1 \leq N \leq 10^5$ )

In the second line of the input, you will be given  $n$  integers,  $a_i$  ( $1 \leq a_i \leq 10^5$ )

In the third line of the input, you will be given  $Q$  number of queries: ( $1 \leq Q \leq 10^5$ )

Following that, there are  $Q$  lines with the format 1  $L R X$  ( $1 \leq x \leq 10^5$ ) or 2  $L R$  ( $1 \leq L \leq R \leq N$ )

### Output

print the answer for every query of type 2 on a single line.

### Examples

standard input	standard output
7 2 3 11 9 8 4 3 4 2 2 3 1 2 7 1 2 2 3 2 2 7	1358 1792 3710
5 40591 3097 73574 34426 52281 6 2 4 4 2 1 5 2 1 2 1 3 3 39973 2 5 5 2 3 4	955575183 270524667 624270388 811103748 469845835