Mod Lovers

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Mazen knows you love *Mod*, so *He* challenges you with an easy task.

You will be given an array a of n integers and q queries.

For each query, you will be given two integers l and r :$(1 \leq l \leq r \leq n)$ and you need to respond with the multiplication of all elements in the range l and r mod $10^9 + 7$.

In other words, you need to output $\prod_{i=l}^{r} a_i$ mod $10^9 + 7$.

Input

First line contains n – $(1 \leq n \leq 2 \cdot 10^5)$ – number of elements.

Second line contains array a of n integers a_i $(1 \leq a_i \leq 10^9)$.

After that, you have q – $(1 \leq q \leq 10^5)$ – number of queries.

For each query, you will be given two integers l and r – $(1 \leq l \leq r \leq n)$– start and end of the range.

Output

For each query, you need to respond with the multiplication mod $10^9 + 7$

Example

standard input	standard output
5 1 2 3 4 5 3 1 5 1 4 3 5	120 24 60