*In Bulgarian, “co-prime” reads out loud like the slang “How’s it goin’?”*

 You are given N integers $a\_{1}, a\_{2}…a\_{N}$. You should answer Q queries in the form „$l\_{i} r\_{i}$“ which seek the following: What is the number of ordered co-prime pairs of integers $\left(a, b\right)$ modulo $10^{9}+7$, whose sum is equal to $\prod\_{j=l\_{i}}^{r\_{i}}a\_{j}$?

**Input**

First line of the file **coprime.in** reads 2 integers N and Q. The next line consists of N integers: $a\_{1}, a\_{2}…a\_{N}$. Q queries follow, with 2 integers each: $l\_{i} r\_{i}$.

**Output**

Print Q lines in the file **coprime.out** with 1 number on each – the desired count of pairs.

**Constraints**

$N=2\*10^{5}$*, except the first test where N = 1000*

$$1\leq l\_{i}<r\_{i}\leq N$$

$Q=10^{5}$*,* *except the first test where Q = 1000*

$$1\leq a\_{i}\leq 10^{6}$$

**Time limit: 1.0 sec.**

**Memory limit: 256 MB**

**Sample tests**

|  |  |
| --- | --- |
| **Input (coprime.in)** | **Output (coprime.out)** |
| 6 32 7 3 5 4 31 31 63 5 | 1257616 |
| 10 3205 3485 9490 30438 437539 102 2 14373 134353 345321 102 63 7 | 658381034377399215679633769 |

**Sample test 1 explanation:**

The ordered pairs from the first query from the first test: (41, 1), (37, 5), (31, 11), (29, 13), (25, 17), (23, 19), (19, 23), (17, 25), (13, 29), (11, 31), (5, 37), (1, 41).