Harry Potter

Yugi is preparing his deck for the biggest duel in his life, which is of course against Voldemort. He want to increase the strength of his best spell i.e. Avada Kedavara. In order to do so he needs to solve a simple math problem, since he is not good in math, he asks for your help.

You are given a list of **N** numbers (let it be **A**) and you are to perform **Q** queries on it.

Query 2: l r : runs the following function:-

```
int solve(int l, int r) {
        score = 0;
        for (int y = l; y <= r; y++) {
                p = Fibonacci(A[y]);
                score = gcd(score, p);
        }
        return score;
}
```

Where gcd(x, y) is the Greatest common divisor of x and y.

And Fibonacci (n) is nth Fibonacci number.

Fibonacci (n) = Fibonacci(n – 1) + Fibonacci (n – 2) for n > 1

Fibonacc (n) = n for n = {0, 1}

For each query, output the answer.

Input Format:

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First line of input contain two integers **N** and **Q** where **N** is size of the list **A** and **Q** is the number of queries.

Next line contain **N** space separated integers.

Next **Q** lines 2 integers **l** and **r**.

Output Format:

For each query, output a single integer denoting the answer modulo 10^9 + 7.

Constraints:

1 <= **N** <= 100000
1 <= **Q** <= 100000
1 <= **A**[i] <= 10^9
1 <= **l, r** <= **N**

Sample Input:

5 1
1 4 6 3 5
1 2

Sample Output:

1

gcd(1, 3) = 1

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