Magic Value

Let $B = [B_1, B_2, \ldots, B_m]$ be an array with m elements. The *magic value* of B is defined as follows:

1. Let i and j be two indices such that $1 \le i \le j \le m$ holds. Define $v(i,j) = i \cdot \gcd(B_i, B_{i+1}, \ldots, B_j)$. Here, $\gcd$ means the greatest common divisor.
2. Calculate the maximum ($v_{\max}$) and minimum ($v_{\min}$) possible value of $v(i,j)$ among all pairs (i,j) such that $1 \le i \le j \le m$.
3. The *magic value* of B is defined as $(v_{\max} - v_{\min}) \cdot m$.

Given an array of integers, calculate the sum of the magic values of all nonempty contiguous subarrays of the given array. Note that there are $n(n+1)/2$ such subarrays. Since this sum can be very large, only output it modulo $10^9 + 7$.

Complete the function `sumOfMagicValues` which takes in an integer array and returns an integer denoting the sum of the magic values of all nonempty contiguous subarrays of the array, modulo $10^9 + 7$.

Input Format

The first line of input contains a single integer, n, denoting length of the given array.

The second line contains n space-separated integers $A_1, A_2, \ldots, A_n$, denoting the array elements.

Constraints

- $1 \le n \le 200000$
- $0 \le A_i \le 10^9$

Subtask

- For test cases worth $\sim 40\%$ of the maximum points: $1 \le n \le 4000$

Output Format

Print a single line containing a single integer denoting the sum of the magic values of all subarrays modulo $10^9 + 7$.

Sample Input 0

```
8
2 4 6 12 18 36 40 80
```

Sample Output 0

```
26056
```

Explanation 0

Sample Input 1

```
3
1 4 2
```

Sample Output 1

```
39
```

Explanation 1

Since there are 3 elements , we have $(3*(3+1)/2)=6$ subarrays to consider.

For all 3 subarrays with 1 length we get magic values 0 as $v_{\max}$ and $v_{\min}$ are same.

For subarray $[1,2]$, we get $v_{\max}=8$ and $v_{\min}=1$. so, magic value $=(8-1)\cdot 2=7\cdot 2=14$.

For subarray $[2,3]$, we get $v_{\max}=4$ and $v_{\min}=2$. so, magic value $=(4-2)\cdot 2=2\cdot 2=4$.

For subarray $[1,3]$, we get $v_{\max}=8$ and $v_{\min}=1$. so, magic value $=(8-1)\cdot 3=7\cdot 3=21$.

Hence, the total summation of all magic values is $=14+4+21=39$. Mod 10^9+7, this is $39.$