



Sliding Window Range GCD

Bob has an array a consisting of n positive integers: $a[1], a[2], \dots, a[n]$. He wants to take all possible sub-arrays of length m in it, find the greatest common divisor of the numbers in each sub-array, and find their sum. But his array is too big, so he needs your help. Find the sum for him.

Recall that a sub-array is a consecutive range of an array. And the greatest common divisor of a set of numbers is, well, the biggest number that divides each number in the set.

Input

Read the input from the standard input in the following format:

- line 1: $n \ m$
- line 2: $a[1] \ a[2] \ \dots \ a[n]$

Output

Write the output to the standard output in the following format:

- line 1: sum of greatest common divisors of all possible sub-arrays of length m in the array.

Constraints

- $1 \leq m \leq n \leq 500\,000$
- $1 \leq a[i] \leq 10^6$ (for all $1 \leq i \leq n$)

Subtasks

1. (19 points) $n = m = 2$
2. (32 points) $n \leq 1000$
3. (49 points) No further constraints.

Examples

Example 1

```
2 2
12 18
```

The correct output is:

```
6
```

Here, there are two numbers and we need to find the greatest common divisor of them. So the answer is simply $\text{gcd}(12, 18) = 6$.

Example 2

```
3 2
6 10 15
```

The correct output is:

```
7
```

Here, we need the sum of gcd of all length 2 sub-arrays of the given array. So our answer is $\text{gcd}(6, 10) + \text{gcd}(10, 15) = 2 + 5 = 7$.