Exclusion DP

Problem

Given an array of numbers. Find out sum of all pair gcd.

Exclusion DP

1. Given an array of numbers, find out number of coprime pairs
Consider pairs are ordered, so (a,b) and (b,a) are different pairs

```
f[i] -> Number of tuples with GCD as multiple of i
g[i] -> Number of tuples with GCD as i
for(int i = maxn; i >= 1; i--){
    g[i] = f[i];       //Number of tuples with GCD as multiple of i
    for(int j = 2*i; j <= maxn; j += i){
        g[i] -= g[j]; //Subtracting tuples with GCD j > i such that i divides j
    }
}
```

Exclusion DP

3. Given an array of numbers, find out sum of all pair lcm.

```
f[i] -> Product (a * b) of tuples with GCD as multiple of i
g[i] -> Product (a * b) of tuples with GCD as i
for(int i = maxn; i >= 1; i--){
    g[i] = f[i];        //Number of tuples with GCD as multiple of i
    for(int j = 2*i; j <= maxn; j += i){
        g[i] -= g[j]; //Subtracting tuples with GCD j > i such that i divides j
    }
}
```

Answer = sum of g[i]/i