

## Problem C. Greatest common divisor



Ballon:  
Time limit: 1 seconds  
Memory limit: 512 megabytes

Given a sequence of numbers  $A$  consisting of  $n$  positive integers  $1 \leq n \leq 100$ ) the value of  $i$ th number is  $a_i$ , ( $1 \leq a_i \leq 70$ ).

Considering all non-empty subsets of the sequence  $A$ , we calculate the greatest common divisor of the numbers. What is the sum of all common divisors of all subsets? Knowing the result is very large, we only need to output the result when taking the remainder for  $10^9 + 7$ .

### Input

The first line contains a positive integer  $T$ , ( $1 \leq T \leq 40$ ) which is the number of data sets in the problem.

The next  $T$  datasets are each organized as follows:

- The first line contains a positive integer  $n$ .
- The second line contains  $n$  positive integers, the  $i$ th value is  $a_i$

### Output

The result of each test set includes a positive integer representing the result of the problem.

### Examples

standard input	standard output
2	31
5	10
1 1 1 1 1	
3	
1 2 3	

### Note

Testcase 1: Because the numbers are the same, every set has a greatest common divisor of 1. There are  $2^5 - 1 = 31$  non-empty sets, so the sum of the common divisor is 31.

Testcase 2: The non-empty sets are  $\{1\}, \{2\}, \{3\}, \{1, 2\}, \{1, 3\}, \{2, 3\}, \{1, 2, 3\}$  with corresponding greatest common divisors are 1, 2, 3, 1, 1, 1, 1 and the sum is  $1 + 2 + 3 + 1 + 1 + 1 + 1 = 10$ .