

Hamiltonian LCM

Input file: *standard input*
Output file: *standard output*
Time limit: 7 seconds
Memory limit: 1024 mebibytes

You are given an array a of n positive integers.

Rearrange its elements in any order. If the resulting array is $b_1, b_2, \dots, b_n$, its *value* is

$$\text{lcm}(b_1, b_2) + \text{lcm}(b_2, b_3) + \dots + \text{lcm}(b_{n-1}, b_n),$$

the sum of the least common multiples of all pairs of adjacent elements.

Find the maximum value over all rearrangements of a .

Input

The first line contains a single integer t ($1 \leq t \leq 10$): the number of test cases.

The first line of each test case contains a single integer n ($1 \leq n \leq 100\,000$): the number of elements in the array.

The second line contains n integers $a_1, a_2, \dots, a_n$ ($1 \leq a_i \leq 7$).

It is guaranteed that the sum of n over all test cases does not exceed 100 000.

Output

For each test case, print a single integer: the maximum possible value.

Examples

<i>standard input</i>	<i>standard output</i>
1 2 5 2	10
1 6 2 2 2 3 3 3	30