John is a manager of a CPU chip factory, the factory produces lots of chips everyday. To manage large amounts of products, every processor has a serial number. More specifically, the factory produces n chips today, the i-th chip produced this day has a serial number s_i.

At the end of the day, he packages all the chips produced this day, and send it to wholesalers. More specially, he writes a checksum number on the package, this checksum is defined as below:

$$\max_{i,j,k}(s_i + s_j) \oplus s_k$$

which i, j, k are three **different** integers between 1 and n. And $\oplus$ is symbol of bitwise XOR.

Can you help John calculate the checksum number of today?

Input

The first line of input contains an integer T indicating the total number of test cases.

The first line of each test case is an integer n, indicating the number of chips produced today. The next line has n integers s_1, s_2, ..., s_n, separated with single space, indicating serial number of each chip.

- $1 \leq T \leq 1000$
- $3 \leq n \leq 1000$
- $0 \leq s_i \leq 10^9$
- There are at most 10 testcases with $n > 100$

Output

For each test case, please output an integer indicating the checksum number in a line.

Sample Input

```
2
3
1 2 3
3
100 200 300
```

Sample Output

```
6
400
```