homework8.2 Maximum Xor

Description

There is a nonnegative integer array $a_1,a_2,...,a_{3n}$ of length $3n$. Elements in the array are grouped together to form n groups of size 3 each. The first 3 elements a_1,a_2,a_3 are grouped together, and a_4,a_5,a_6 are grouped together, and so on. You need to pick exactly one number from each group and calculate the bitwise-xor of these numbers. What is the maximum bitwise-xor value achievable?

Input Format

The first line contains an integer $T(1\leq T\leq 100)$ - the number of test cases.

Each test case contains two lines:

The first line contains a positive integer $n(1\leq n\leq 100)$ - the number of groups.

The second line contains an array of nonnegative integers $a_1,a_2,...,a_{3n}(0\leq a_i <2\text{^}_{10},\forall 1\leq i\leq 3n)$.

Output Format

For each test case, output the maximum bitwise-xor value in a separate line.

Sample Input	Sample Output
3 2 14 14 3 18 3 3 2 25 28 19 27 25 6 2 11 13 6 6 11 29	28 31 27

5 3 812 908 254 646 387 908 387 812 831 3 376 912 559 376 1023 1023 912 389 376 3 808 796 796 630 695 8 677 808 796 3 533 428 469 608 912 608 428 428 723 3 641 356 591 57 356 509 408 20 641	1019 1023 1019 1001 1009

Hint

$5 \oplus 12 \oplus 1 = 8$ DP subset sum