1. store the numbers in a Trie. for each number i, query $\max_j a[j] \; xor \; a[i]$ takes $O(w)$, by walking down the Trie. total time $O(nw)$.

2. determine the result bit by bit. We can verify whether we can get an xor result with prefix t in $O(n)$ by hashing. total time $O(nw)$.

3. Trie. $O(\frac{nw}{\log w})$.

Could you do this in $O(n)$ runtime?
No I can't.

References