

12. Given an n -element array X of integers, Algorithm C executes an $O(n)$ -time computation for each even number in X , and an $O(\log n)$ -time computation for each odd number in X . What are the best-case and worst-case running times of Algorithm C? [5 Marks]

Best Θ case running time: all odd numbers
 ~~$t = \log n$~~ t is $O(n \log n)$

Worst case: all even numbers
 ~~t is $O(n^2)$~~