Chapter 3 Homework

Deadline: 2021/10/1

10:10 a.m

1. Show that
   a. $2^{n+1} = O(2^n)$
   b. $n^n \neq O(2^n)$

2. Answer true or false to the following statements. Give a counterexample if the statem1nt is false.
   a. For the two functions $f(n)$ and $g(n)$, either $f(n) = O(g(n))$ or $f(n) = \Omega(g(n))$.
   b. $f(n) = O(g(n))$ implies $\lg(f(n)) = O(\lg(g(n)))$, where $\lg(g(n)) \geq 1$ and $f(n) \geq 1$ for all sufficiently large n.
   c. $f(n) + o(f(n)) = \Theta(f(n))$.
   d. $f(n) + g(n) = \Theta(\min(f(n), g(n)))$.

3. What does FIND-MAXIMUM-SUBARRAY return when all elements of A are negative?