CSE548 Quiz 2017-09-06

1. Show that solution of $T(n) = 2T(n/2) + n$ is $O(n\lg n)$. // assume n is even number

a. Guess the running time: $T(n) = O(n\lg n)$

b. Use mathematical induction to find the constants and show the solution works:

2. Name three ways to find the asymptotic running time for recurrences.

A:_____, B: _____tree __, C: _____

HINT:

A. name of method used for problem 1.

C. The name of the theorem that can be applied to find running time on recurrences of the from

$T(n) = aT(n/b) + f(n)$ (with additional conditions)

In Class Problems

1. Why would it false to "prove" $T(n)= O(n)$ by guessing $T(n) <= cn$ for recurrence of $T(n) = 2T(n/2) + n$?

2. $T(n) = 2T(\text{sqrt}(n)) + \lg n$