CMPS 2200 Recitation 03

Name (Team Member 1):_____
Name (Team Member 2):_____

In this recitation, we will investigate recurrences for work and span of algorithms.

Tree method (7.5 pts)

Solve the following recurrences using the tree method.

a) $W(n) = 3W(n/4) + n^2$.

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b) $W(n) = W(n/3) + W(2n/3) + n \log n$.

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c) $W(n) = 2W(n/2) + n/\log n$.

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Brick method (7.5 pts)

Solve the following recurrences using the brick method. First argue whether they are root-dominated, leaf-dominated, or balanced. Then, state the resulting asymptotic bound for $W(n)$.

a) $W(n) = 2W(0.49n) + 1.01n$.

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b) $W(n) = W(n/2) + W(n/4) + 0.999n$.

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c) $W(n) = \sqrt{n}W(\sqrt{n}) + \sqrt{n}$.

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