# 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. Unlike other recitations, you may add your answers directly to this document. You do not need to use an `answers.md`.

## Tree method (9 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 (6 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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## Bonus (3 pts)

Solve the following recurrence.

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

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