

**CMSC401 – Spring 2022
THEORY HOMEWORK 1**

Due: Monday, 2/14, 5pm

Submit a PDF (preferred) or Word file with the solution through Canvas

PROBLEM 1

Use Master Method to find solution ($T(n) = \Theta(?)$) for the following recurrence equations, if possible. If not possible, indicate why.

a) $T(n) = 16T(n/4) + n^2$

b) $T(n) = 4T(n/4) + n$

c) $T(n) = T(n-2) + 2n^2$

PROBLEM 2

Use the substitution method to show that for the recurrence equation:

$$T(1) = 8$$

$$T(n) = T(n-1) + 4n$$

the solution is $T(n) = O(n^2)$