

CS 331: Algorithms and Complexity (Fall 2023)
Unique Number: 52765, 52770

Assignment 4 - Solution

Due on Tuesday, 27 February, by 11.59pm

Problem 1

(10 points)

(a) (1pt each)

$T_2(n)$ has $\frac{4}{3}$ inside the recurrence, while results in subsequent calls growing the value of n .

$T_3(n)$ has $-5n^3$ as the cost, which results in negative time complexity.

(b) (2pt each)

- $T_1(n) = 2T_1(\frac{n}{4}) + n^2$, $T_1(1) = 1$
Using Master's Theorem

(c) (2 pts)

Problem 2**(10 points)****(a)** (4 points)**(b)** (2 points)**(c)** (2 points)**(d)** (2 points)

Problem 3

(10 pts)

(a)

(b)

(c)