WI23_CSBR-NY_1_NC_INT2 HW6 (Q5)

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TOTAL POINTS

16.5 / 20

QUESTION 1

1 Q5 16.5 / 20

 \checkmark - 0.5 pts Did not properly define \$\$\forall n \geq n_0\$\$

√ - 3 pts Did not show clear work identifying
constants for (b)

- 1 ??
- 2 Typo. We need to prove Theta() instead of O() only

Question #5:

a)
$$5n^3 + 2n^2 + 3n = O(n^3)$$

Proof:

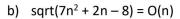
$$5n^3 \le 5n^3 + 2n^2 + 3n \le 5n^3 + 2n^3 = 15n^3$$

$$C_1 = 15$$

$$C_2 = 5$$

$$N_0 = 3$$

Therefore, $5n^3 + 2n^2 + 3n = O(n^3)$



Proof:

$$sqrt(7n^2 + 2n - 8) = 7n + 2sqrt(n) - sqrt(8)$$

 $7n \le 7n + 2sqrt(n) - sqrt(8) \le 7n + 2n = 9n$

$$C_1 = 9$$

$$C_2 = 7$$

$$N_0 = 4$$

Therefore, $sqrt(7n^2 + 2n - 8) = O(n)$

1 Q5 16.5 / 20

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- $\sqrt{-3 pts}$ Did not show clear work identifying constants for (b)
- 1 ??
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