

CSci 3501 Assignment 1

Due Friday, September 5 in class

Problem 1 (6 points). For each of the following statements please say if it is true or false and **explain your answer**.

- $n^2 + 5n + 3 \in o(n^3)$
- $n^2 + 5n + 3 \in \omega(n^2)$
- $n^2 + n \log_2 n \in O(n^2)$
- $n + n \log_2 n \in O(n)$
- $5n + 2 \in \Theta(1)$
- $3 \log_2 n \in \Theta(\log_2 n)$

Problem 1 (6 points).

- Prove the following: if $f(n) \in O(g(n))$ and $g(n) \in O(h(n))$ then $f(n) \in O(h(n))$.
- Prove the following: if $g(n) \in o(f(n))$ then $f(n) + g(n) \in \Theta(f(n))$.