

CSci 3501 Assignment 1
Due Friday, September 4 in class

Problem 1 (6 points). Please prove or disprove each of the following statements.

- $n^2 + 5n + 3 \in \Omega(n^3)$
- $n^2 + 5n + 3 \in \Theta(n^2)$
- $5 \in O(n)$
- $5 \in O(1)$
- $2n^3 + 3 \in \Omega(n^2)$
- $5n + 2 \in \Theta(1)$

Problem 2 (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 $f(n) \in \Omega(g(n))$ and $g(n) \in \Omega(h(n))$ then $f(n) \in \Omega(h(n))$.