

Tutorial 01: May 10

1. Θ -Notation:

Prove from first principles that $n^3 \in \Theta(4n^3 - 3n^2 + 2n - 1)$.

2. Little o:

(a) Prove from first principles that $\frac{1}{n} \in o(1)$.

(b) Prove from first principles that $2000n^2 \in o(n^n)$.

3. Relationships Between Order Notations:

Assume f and g are positive functions. Disprove the following statement using definitions of order notations.

There exists $f(n)$ and $g(n)$ such that $f(n) \in o(g(n))$ and $f(n) \in \omega(g(n))$