CMP2202

Due: 12th April

1. Prove the following

- $10n^2 \in \Omega(n^2)$
- $0.3n^2 - 2n \in \Omega(n^2)$
- $0.1n^3 \in \Omega(n^2)$
- $10n^2 \in \Theta(n^2)$
- $0.3n^2 - 2n \in \Theta(n^2)$
- $(1/2)n(n+1) \in \Theta(n^2)$

2. Prove the properties on the asymptotic order of growth.

3. If the first three Fibonacci numbers are given as $x_1 = 1$, $x_2 = 1$ and $x_3 = 2$, then what is the least value of n for which

$\frac{x_{n+1}}{x_n} = 1.618$ correct to 3 decimal places

4. The partial sums of the first n and n + 1 numbers of the Fibonacci sequence are both divisible by 11. What is the smallest value of n for which this is true?