Q1: Using the definition of $O$, give a formal proof for:
$12n + n \log(n^3) \in O(n \log n)$.

Q2: Using the definition of $\Theta$, give a formal proof for:
$40 + 2n - 10n^2 + 2n^3 \in \Theta(n^3)$.

Q3: Prove or disprove the following statement:
$2^{n+1} \in O(2^n)$.

Q4: Do $2^n$ and $3^n$ have the same order of growth? Why?