5a. $5n^3 + 2n^2 + 3n = \Theta(n^3)$ $5n^3 + 2n^2 + 3n \le 5n^3 + 2n^2 + 3n^2 \le 5n^3 + 2n^3 + 3n^3 = 10n^3$ $5n^3 \le 5n^3 + 2n^2 + 3n \le 10n^3 = c_1n^3$ $5n^3 + 2n^2 + 3n \le 10n^3 = c_1n^3$ $5n^3 + 2n^2 + 3n = \Theta(n^3)$

5b. $\sqrt{7}n^2+2n-8=\Theta(n)$ Let c=7 and k=14, then for any n>k, we have $2n-8 \le n^2$, so: $\sqrt{4}(4N)MNM$ $7n^2+2n-8 \le 7n^2 \le 14n^2$ Taking the square root of both sides gives us: $\sqrt{7}n^2+2n-8 \le c|n|$ for all n>kTherefore, $\sqrt{7}n^2+2n-8=\Theta(n)$

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