t 2 - 7

$f(n) = 3n^2 - n + 4$

$g(n) = n \log n + 5$

$f(n) + g(n) = O(n^2)$

$3n^2 - n + 4 + n \log n + 5 \leq C n^2$

$3n^2 - n + n \log n + 9 \leq C n^2$

$3n^2 + n(\log n - 1) + 9 \leq C n^2$

$C = 4$ $\quad n \log n \leq \frac{n^2}{2}$

$n \log n - n + 9 \leq n^2$

$\frac{n^2}{2} - n + 9 \leq n^2$

$9 \leq n^2 - \frac{n^2}{2} + n$

$\frac{n^2}{2} + n - 9 \geq 0$

$n\left(\frac{n}{2}+1\right) - 9 \geq 0$

- $\forall n \geq 4 \quad \therefore \quad f(n) + g(n) = O(n^2)$