Mini Homework 1

$g(n) = \Theta(F(n))$ and $h(n) = O(F(n))$

$\implies \exists\, k_1 > 0, k_2 > 0, n_1 > 0$ s.t. $k_1 F(n) \leq g(n) \leq k_2 F(n) \,\, \forall\, n > n_1$ and $\exists\, k > 0, n_2 > 0$ s.t. $h(n) \leq k F(n) \,\, \forall\, n > n_2$

$\implies \exists\, k_1' = k_1, k_2' = k_2 + k, n_0 = \max\{n_1, n_2\}$ s.t. $k_1' F(n) \leq g(n) + h(n) \leq k_2' F(n) \,\, \forall\, n > n_0$