Define, for all $n \geq 2$, $T(n) = 3T(n/2) + n^2$.

By hand, as in the lecture, solve the recurrence relation

Make the usual simplifying assumptions: $T(1) = 1$, $n = 2^k$.

First, find a closed form solution for $T(n)$, as a function of k and/or n.

Then, give a Θ form solution for $T(n)$, as a function of n.