Problem (1)

Solve the following recurrences using **recursion tree**:

$T(n) = 3T(n/3) + n^2$

Problem (2)

Solve the following recurrences using **Master theorem**:

1. $T(n) = 16\,T(n/4) + n^2 \log_3 n$

2. $T(n) = T(4n/5) + \Theta(n)$

3. $T(n) = 2T(n/4) + 1$

4. $T(n) = 2T(n/4) + n^2$