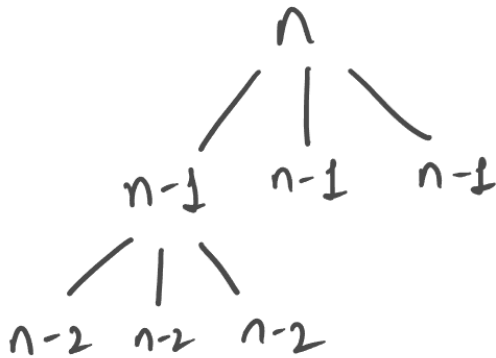# Problem Set 2

3.2) T(n)=3T(n−1)

steps

$1 = 3^0$

$3 = 3^1$

9

⋮

3^k

$T(n) = 3T(n-1)$

$T(n) = 3^2 T(n-2)$

$T(n) = 3^3 T(n-3)$

$T(n) = 3^k (T(n-k))$

Here $n - k = 1$

$k = n - 1$

$\therefore T(n) = 3^{(n-1)} \Rightarrow O(3^n)$