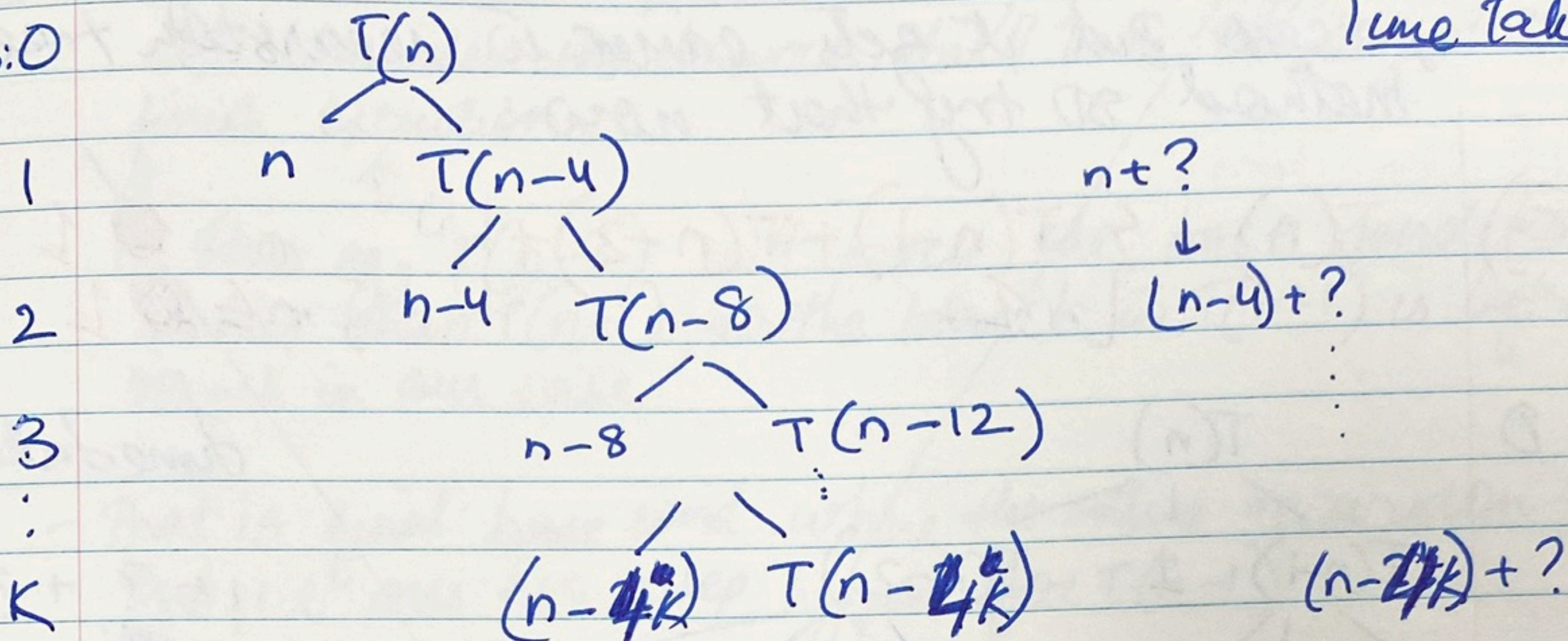


Ex) $T(n) = \begin{cases} T(n-4) + n & , n > 0 \\ 1 & , n = 0 \end{cases}$

levels: 0

Time Taken



Base Cond: $T(0) = T(n - \frac{n}{4}) \Rightarrow n - \frac{n}{4} = 0 \Rightarrow n = 4k$

$$k = \frac{n}{4}$$

Series :

Sub K

$$\begin{aligned} &= n + (n-4) + (n-8) + \dots + (n-4k) \\ &= n + (n-4) + (n-8) + \dots + (n - 4(\frac{n}{4})) \\ &= n + (n-4) + (n-8) + \dots + 0 \\ &= 0 + 4 + 8 + \dots + n \\ &= 4 + 8 + \dots + n \end{aligned}$$

Arithmetic Series w common diff = 4.

$$\Sigma = \frac{n}{2} (2a + (n-1)d)$$

$$= \frac{n+1}{2} (2(0) + (n+1-1)4)$$

$$= \frac{n+1}{2} (0 + 4n)$$

$$= \frac{4n^2}{2} + \frac{4n}{2}$$

$$= 2n^2 + 2n$$

Dominant term

Hibroy

$$\boxed{O(n^2)}$$