11

Seg Ter Qua Qui Sex Sáb Dom

Nathann Zini dos Reis

19/04/21 Prova 2 19.2.4007

Questão 2.

$$\begin{cases} T(n) = 2 * T(n/2) + 2 \\ T(1) = 1 \end{cases}$$

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

$T(n) = 2(2T(n/4) + 2) + 2 \Rightarrow 4T(n/4) + 6$

$T(n) = 4(2T(n/4/2) + 2) + 6 \Rightarrow 8T(n/8) + 14$

$T(n) = 8(2T(n/8/2) + 2) + 14 \Rightarrow 16T(n/16) + 30$

⋮ ⋮

- $T(n) = 2^k T(n/2^k) + 2^{k+1} - 2$ para $n > 1$ ///

- Para $T(1) = 1$, logo $n/2^k = 1 \Rightarrow k = \log_2 n$ ///

- Substituindo ↳ para $n = 1$

$T(n) = 2^{\log n} T(n/2^{\log n}) + 2^{\log n + 1} - 2$

$T(n) = nT(n/n) + 2n - 2$

$T(n) = nT(1) + 2n - 2$

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