Johan Andres vallecilla

Taller metodo maestro

Resolucion
matematica

1)

$T(n) = 4 \cdot T(\frac{n}{2}) + O(n^2)$ Comparando

$a = 4, \quad b = 2, \quad d = 2, \quad f(n) = O(?) \quad f(n) = n^2$ caso 2

caso 2: $4 = 2^2 = a = b^d$ $n^{\log_2 4} = n^2$ caso 2

$T(n) = O(n^d \log n)$
$T(n) = O(n^2 \log n)$ $\rightarrow$ complejidad

3)

$T(n) = 3 \cdot T(\frac{n}{3}) + O(n)$

$a = 3, \quad b = 3, \quad d = 1, \quad f(n) = O(n)$

comparando $f(n) = 1$ $a = b^d$

$n^{\log_3 3} = 1$ $\rightarrow$ caso 2, $3 = 3^1$

complejidad

$T(n) = O(n^d \log n)$
$T(n) = O(n \log n)$

3)

$$T(n) = 5 \cdot T\left(\frac{n}{2}\right) + O(n \log n)$$

$a = 5, \quad b = 2, \quad d = 1, \quad f(n) = (n \log n)$

comparando

$$n^{\log_2 5} = 2.32$$

$f(n) = n \log n$ \} caso I, $a > b^d$, $5 > 2^1$

complejidad

$$T(n) = O(n^{\log_b a})$$

$$T(n) = O(n^{\log_2 5})$$