

$$T(n) = 2T(n/2) + n; T(1) = 1$$

$$\textcircled{1} T(n) = 2T(n/2) + n$$

$$\textcircled{2} T(n) = 2(2T(n/4) + n/2) + n = 4T(n/4) + 2n //$$

$$\textcircled{3} T(n) = 4(2T(n/8) + n/4) + 2n = 8T(n/8) + 3n //$$

$$2^K T(n/2^K) + Kn //$$

$$n/2^K = 1 \rightarrow n = 2^K \rightarrow \log_2(n) = \log_2(2^K)$$

$$K = \log_2(n)$$

reemplazando

$$\frac{2^{\log_2(n)}}{n} : T(n/2^K) + (\log^2 n) n$$

$$T(n) = n + n(\log_2(n)) //$$

$$O(Fn) = O(n \log(n))$$