Exercise 2.3-5:

Worst case:

$\because T(1) = 1$

$\because \exists k \in N^*, 2^{k-1} < n \leq 2^k.$

$\therefore T(2^k) = T(2^{k-1}) + 1 = T(1) + k = k + 1$

$\therefore T(2^{k-1}) = k$

$\because T(2^{k-1}) < T(n) \leq T(2^k)$

$\therefore T(n) = \Theta(\lg n)$