



Examples

Ex. $T(n) = 4T(n/2) + n$
 $a = 4, b = 2 \Rightarrow n^{\log_b a} = n^2; f(n) = n.$
CASE 1: $f(n) = O(n^{2-\varepsilon})$ for $\varepsilon = 1$.
 $\therefore T(n) = \Theta(n^2).$

Ex. $T(n) = 4T(n/2) + n^2$
 $a = 4, b = 2 \Rightarrow n^{\log_b a} = n^2; f(n) = n^2.$
CASE 2: $f(n) = \Theta(n^2 \lg^0 n)$, that is, $k = 0$.
 $\therefore T(n) = \Theta(n^2 \lg n).$