

1 master-theorem

$$T(n) = aT\left(\frac{n}{b}\right) + f(n) \tag{1}$$

If $f(n) = O(n^{\log_b^a - \epsilon})$ for some constant $\epsilon > 0$. Then $T(n) = \Theta(n^{\log_b^a})$

If $f(n) = \Theta(n^{\log_b^a})$, then $T(n) = \Theta(n^{\log_b^a} \lg n)$

If $f(n) = \Omega(n^{\log_b^a + \epsilon})$ for some constant $\epsilon > 0$, if $af(\frac{n}{b}) \leq cf(n)$ for some constant $c < 1$ and all sufficiently large n , then $T(n) = \Theta(f(n))$