$T(n) = aT(n/b) + \Theta(n^k \log^p n)$

$a >= 1$, $b > 1$, $k >= 0$ and p is a real number.

if $a > b^k$, then $T(n) = \Theta\ (n^{\log_b a})$

if $a = b^k$

- if $p > -1$, then $T(n) = \Theta(n^{\log_b a} \log^{p+1} n)$
- if $p = -1$, then $T(n) = \Theta(n^{\log_b a} \log\log n)$
- if $p < -1$, then $T(n) = \Theta(n^{\log_b a})$

if $a < b^k$

- if $p >= 0$ then $T(n) = \Theta(n^k \log^p n)$
- if $p < 0$ then $T(n) = \Theta(n^k)$

Master's Theorem

$T(n) = aT(n/b) + \Theta(n^k \log^p n)$

$a >= 1$, $b > 1$, $k >= 0$ and p is a real number.

1. if $a > b^k$, then $T(n) = \Theta\ (n^{\log_b a})$
2. if $a = b^k$
   - if $p > -1$, then $T(n) = \Theta(n^{\log_b a} \log^{p+1} n)$
   - if $p = -1$, then $T(n) = \Theta(n^{\log_b a} \log\log n)$
   - if $p < -1$, then $T(n) = \Theta(n^{\log_b a})$
3. if $a < b^k$
   - if $p >= 0$ then $T(n) = \Theta(n^k \log^p n)$
   - if $p < 0$ then $T(n) = \Theta(n^k)$