Date.....

Master theorem for Dividing function

$T(n) = a\,T(n/b) + f(n)$

$a \geq 1$

$f(n) = \Theta(n^k \log^p n)$ $\quad b > 1$

① $\log_b^a$ Case1: if $\log_b^a > k$ then $\Theta(n^{\log_b^a})$

② k Case2: if $\log_b^a = k$ (Tip: If both are equal then multiply by $\log n$)

if $p \geq -1$ $\quad \Theta(n^k \log^{p+1} n)$

if $p = -1$ $\quad \Theta(n^k \log\log n)$

if $p < -1$ $\quad \Theta(n^k)$ take just n

Case3: if $\log_b^a < k$ if $p \geq 0$ $\quad \Theta(n^k \log^p n)$

if $p < 0$ $\quad \Theta(n^k)$

If log is in Demo, Don't take log in this case