

# Master Method

To solve recursive relationships

General Format of Recursive Functions that can be solved with Master Method

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

Master Method Formula

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