Assignment = 9

PAGE NO
DATE

1. $T(n) = 2T(n/2) + n \Rightarrow a = 2, \quad k = 1$
$b = 2, \quad p = 0$

$\log_2^2 = 1 = k$ (case 2)

$p > -1 \rightarrow \Theta(n \cdot \log(0+1) n) = \Theta(n \log n)$

2. $T(n) = 2T(n/2) + n\log n \Rightarrow a = 2, \quad k = 1$
$b = 2, \quad p = 1$

$\log_2^2 = 1 = k$ (case 2)

$p > -1 \rightarrow \Theta(n \cdot \log((1+1) \cdot n) \rightarrow \Theta(n \log 2n)$

3. $T(n) = 2T(n/2) + n^2 \Rightarrow a = 2, \quad k = 2$
$b = 2, \quad p = 0$

$\log_2^2 = 1 < k$ (case 3).

$p > 0 \rightarrow \Theta(n^2)$

4. $T(n) = 8T(n/2) + n^2 \Rightarrow a = 8, \quad k = 2$
$b = 2, \quad n = 0$

$\log_2^3 = 3 > (k = 2)$ (case 1)

$\Theta(n^3)$