

## Practice Set Problems (Master's Theorem)

$$1) T(n) = T(\sqrt{n}) + c$$

$\downarrow$   
 $n^{1/2}$

$$n = 2^k \text{ (Hint)} \rightarrow T(2^k) = T(2^{k/2}) + c$$

$$\underline{\text{Answer}} \rightarrow \Theta(\log \log n) \quad \text{L} \quad \underline{S(k) = \quad}$$



$$2) T(n) = 2T(n/2) + n \log n$$

$$\underline{\text{Answer}} \rightarrow \Theta(n (\log n)^2)$$

New  
Recurrence  
Relation

$$3) T(n) = 2T(n/2) + n$$

$$\underline{\text{Answer}} \rightarrow \Theta(n \log n)$$