

# Review 3

---

1. Write O if an entry is true or X otherwise.

	$O(n \lg n)$	$\Omega(n \lg n)$	$\Theta(n \lg n)$
$\lg n$			
$n$			
$n \lg n$	O	O	O
$n \lg^2 n$			
$n^2$			

2. Show  $3n + 1 = O(n^2)$  by the definition of  $O$ .

3. Write asymptotic notations that satisfy each relation and explain why.

(1) Transitivity

ex>  $O$  is transitive because  $f(n) = O(g(n))$  and  $g(n) = O(h(n))$  implies  $f(n) = O(h(n))$  .

(2) Reflexivity

(3) Symmetry

(4) Transpose symmetry