

# CSE 101 Practice Problems - big-O notation

## Running Time Analysis

For the pseudo-code below, give the asymptotic running time in  $\Theta$  notation:

1. for  $i = 1$  to  $n$  do  
     $j = i$   
    while  $j < n$  do  
         $j = j + 3$
2. for  $i = 1$  to  $n$  do  
    for  $j = 2*i$  to  $n$  do  
         $s = s+1$
3. for  $i = 1$  to  $n$  do  
     $j = i$   
    while  $j < n$  do  
         $j = 2*j$
4. for  $i = 1$  to  $n$  do  
     $j = n$   
    while  $i*i < j$  do  
         $j = j - 1$
5. for  $i = 1$  to  $n$  do  
     $j = 2$   
    while  $j < i$  do  
         $j = j*j$

(source: Berkeley CS 170, Fall 2009, HW 1)