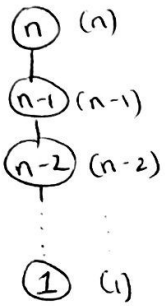
Helal Chowdhury
HW #4

1)

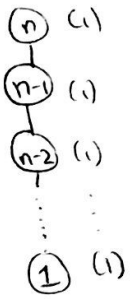
Sum_lst1



$T(n) = n + n-1 + n-2 \dots 1$

$T(n) = \theta(n^2)$

Sum_lst2



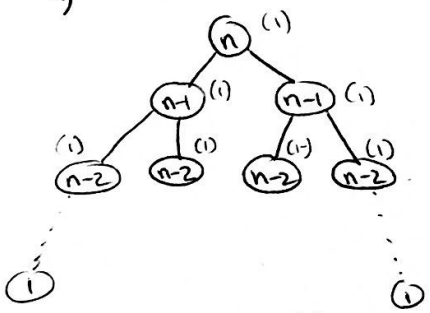
$T(n) = 1+1+1+1 \dots 1$

$T(n) = \theta(n)$

Version 2 is asymptotically faster

2)

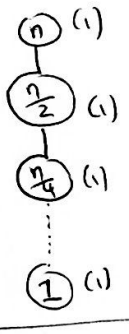
a)



$= 2^0 + 2^1 + 2^2 \dots 2^{n-1}$

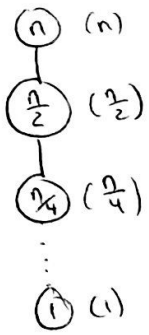
$T(n) = \theta(2^n)$

b)



$T(n) = \theta(\log n)$

c)



$T(n) = \underbrace{n + \frac{n}{2} + \frac{n}{4} + \frac{n}{8} \dots 1}_{\log_2 n \text{ levels}}$

$T(n) = \theta(2n-1)$

$T(n) = \theta(n)$