a) $\Theta(1) + \sum_{i=2}^{n} \Theta(1)$

$\Theta(1) + \Theta(\log(\log(n)))$

$\Theta(\log(\log(n)))$

i
2
4 ↓ ×2
16 ↓ ×4
256 ↓ ×8 ↓ ×2
...

b) $\sum_{i=1}^{n} \Theta(1) + O(\sum_{k=0}^{i^3} \Theta(1))$

$\Theta(1) + \sum_{i}^{\sqrt{n}} \sum_{k=0}^{i} \Theta(1)$

$\sum_{i}^{\sqrt{n}} \Theta(n)$

$\Theta(n \cdot \sqrt{n}) = \Theta(n^{3/2})$

c) $\sum_{i=1}^{n} \Theta(1) + \sum_{k=1}^{n} \Theta(1) + O(\sum_{m} \Theta(1))$

$\Theta(n) + \sum_{i=1}^{n} \Theta(n) + \sum_{i} \sum_{k} \sum_{n} \Theta(1)$

$\Theta(n^2) + \sum_{i}^{n} \sum_{k}^{n} \Theta(\log(n))$

$\Theta(n^2 \log(n))$

m
1
2 ↓ ×2
4 ↓ ×2
8 ↓ ×2

d) $\Theta(1) + \sum_{i=0}^{n} \Theta(1) + O(\sum_{j} \Theta(1))$

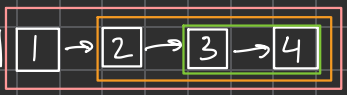
$\Theta(n) + \sum_{i} \sum_{j} \Theta(1)$

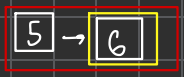
i	j
10	15
15	22 ↓ ·3/2
	33 ↓ ·3/2
	49 ↓ ·3/2

$\Theta(n) + \sum_{i=0}^{n} \Theta(\log(n))$

$\Theta(n) + \Theta(n \log(n))$

I accidently only exported the last page on my first submission :)

a) in1 

in2 

in1 = 1, 5, 2, 6, 3, 4

llrec(in1, in2)
in1 & in2 ≠ nullptr
in1->next = llrec(in2, in1->next) = 5, 2, 6, 3, 4
llrec(in1, in2)
in1 & in2 ≠ nullptr
in1->next = llrec(in2, in1->next) = 2, 6, 3, 4
llrec(in1, in2)
in1 & in2 ≠ nullptr
in1->next = llrec(in2, in1->next) = 6, 3, 4
llrec(in1, in2)
in1 & in2 ≠ nullptr
in1->next = llrec(in2, in1->next) = 3, 4
llrec(in1, in2)
in2 = nullptr
return in1

b) in1
in2 2

llrec
in1 = nullptr
return in2

2