

Problem 4:

$in1 = 5$ $5 \rightarrow next = 2$ $2 \rightarrow next = 6$ $6 \rightarrow next = 3$

(a) $1, 5 \rightarrow 5, 2 \rightarrow 2, 6 \rightarrow 6, 3 \rightarrow 3, null \rightarrow$
(1) $next = 1$ rec($1, 5$)

$1 \rightarrow 5 \rightarrow 2 \rightarrow 6 \rightarrow 3 \rightarrow A$

The function goes in the order of passing 1, 5 and then 5, 2 then 2, 6 then 6, 3 then 3, null. Once $in2$ is set to null the function returns $in1$ which is 3 and sets the next node of 6 to 3. Then it returns 6 and sets the next node of 2 to 6. Then it returns 2 and sets the next node of 5 to 2. Then it returns 5 and sets the next node of 1 to 5. The final order is $1 \rightarrow 5 \rightarrow 2 \rightarrow 6 \rightarrow 3 \rightarrow \uparrow$

(b) Since $in1$ is a nullptr the first part of the if statement is run and it returns the $in2$ linked list node 2.