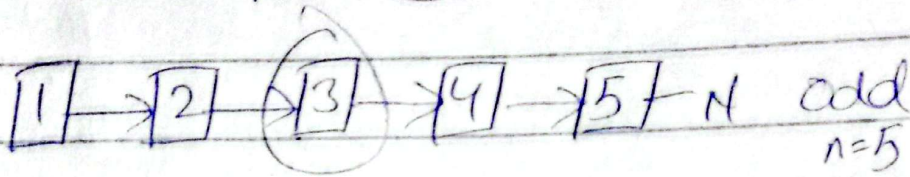
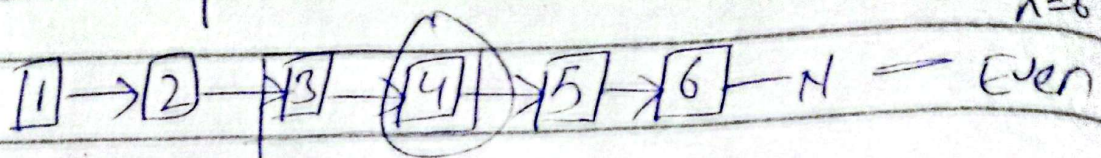


## Middle of linked list



Steps → Brute Force

Takes double pass.

① Linked list Size

② Add 1 to  $\left\lfloor \frac{\text{size} + 1}{2} \right\rfloor$

→ Slow-Fast Approach

Single-loop

2 pointers

slow = head → +1

fast = head → +2

slow = slow → next

fast = fast → next → next

① fast != NULL (even)

② fast → next != NULL (odd)

slow = head

fast = head

while (fast != NULL || fast → next != NULL) {  
    slow = slow → next

    fast = fast → next → next

}

return slow;

S.C =  $O(1)$

T.C =  $O(n)$

better than brute force

as it takes single pass