

1) $O(N)$ because it uses the `getNode()` method which has while loops used in it

2) $O(N)$ also the same thing, it uses `getNode()` which uses while loop

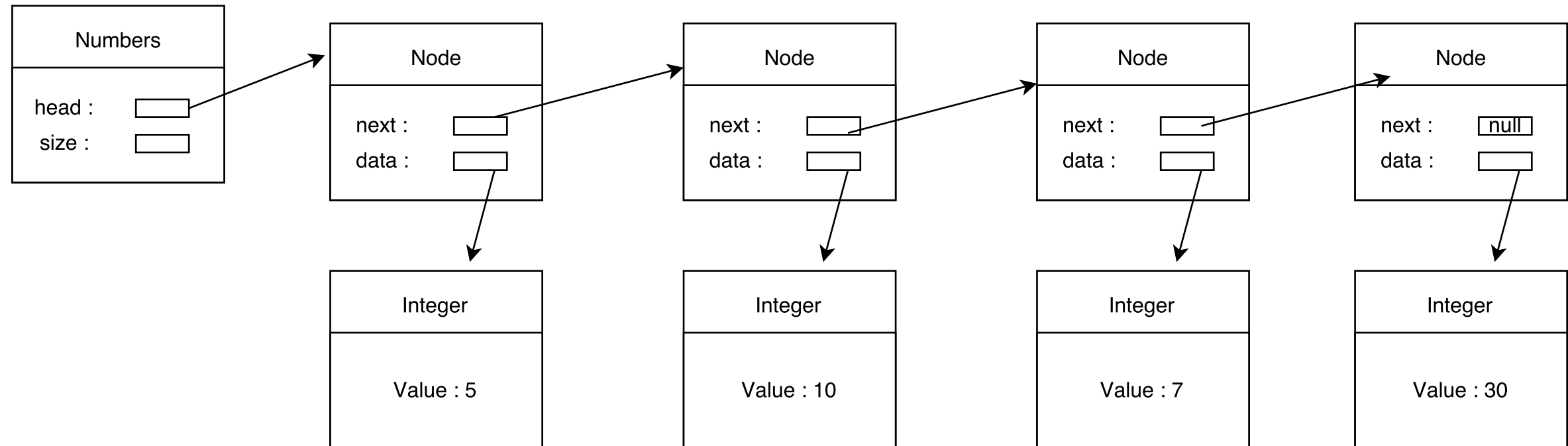
3) `addFirst()` is $O(c)$ constant

`addAfter()` is $O(c)$ constant as well

`add()` is $O(c)$ constant as well

`addLast()` $O(N)$ only for linked list with no tail

4)



```

int sum = 0;
Node<Integer> nodeRef = head;
while(nodeRef != null) {
    int next = nodeRef.data;
    sum += next;
    nodeRef = nodeRef.next;
}
  
```

5)

- This line replaces the first node and makes new `Node<String>("Shakira", head.next)` the new head of the list
- it sets the third Node to be the fourth Node
- It adds the Node, new `Node<String>("Tamika")` to the end of the list
- changes the Node with String "Harry" to "Sally" and adds a Node with "Harry" after it.