

Linked List Insertion

Name: _____

1. a) Draw a diagram of a singly-linked list of three elements with values 6, 17, and 103 which has both head- and tail-pointers. Be sure to include a picture of each node, and a picture of the data in the list structure itself (i.e., the head and tail pointers; see part 2 for an example of how the data is organized). *Clearly indicate any pointers which are NULL.*

- b) Draw a diagram of the same list after an additional node has been added in the head position with value 82.
- c) Draw a diagram showing the same list when it is empty (has zero elements). *As above, clearly indicate any NULL pointers.*

2. Look at the SinglyLinkedHeadTailList code below, and **fill in the implementation** of the addToFront method, *including the condition for the if statement*.

```
class SinglyLinkedHeadTailList<E> {
    class Node<E> {
        protected E value; // can be accessed by SinglyLinkedHeadTailList
        protected Node next;
        public Node(E value) {
            this.value = value;
            this.next = NULL;
        }
    }
    protected Node head;
    protected Node tail;
    protected int size;

    public SinglyLinkedHeadTailList() {
        this.head = NULL;
        this.tail = NULL;
        this.size = 0;
    }

    public void addToFront(E value) {
        Node newNode = new Node(value);

        if (

        ) {

        } else {

        }
    }
}
```