1. Give the worst-case running time of the following methods using big-Oh notation. Both methods are in class `LinkedList`. The reference `head` points to the first node in the list and is a member variable of the class `LinkedList`. The first node in the list is a dummy item and is never removed. \( n \) is the number of nodes in the list.

(a) This method deletes the first item in the list and returns the element stored in that node.

```java
public E deleteFirst() throws NoSuchElementException
{
    if ( head.next == null )
        throw new NoSuchElementException();

    E ret = head.next.data;
    head.next = head.next.next;

    return( ret );
}
```

(b) This method deletes the last item in the list and returns the element stored in that node.

```java
public E deleteLast() throws NoSuchElementException
{
    if ( head.next == null )
        throw new NoSuchElementException();

    Node<E> current;
    current = head;

    while ( current.next.next != null )
        current = current.next;

    E ret = current.next.data;
    current.next = null;

    return( ret );
}
```
2. Give the worst-case running time of the following methods using big-Oh notation. The input to both methods is an array of integers and \( n \) is the size of the array.

(a) The following method computes the average of the first and last integers in an array.

```java
public double computeAverageOfEnds( int[] list )
{
    double average;
    average = list[0] + list[ list.length-1 ];
    average = average/2;
    return( average );
}
```

(b) The following method computes the sum of integers in an array.

```java
public int computeSum( int[] list )
{
    int sum = 0;
    for ( int i = 0; i < list.length; i++ )
    {
        sum = sum + list[i];
    }
    return( sum );
}
```

3. Which of the following statements are true:

(a) \( 6n^2 + 7 \) is \( O(n) \).

(b) \( 4n - 5 \) is \( O(1) \).

(c) \( 27 \) is \( O(1) \).

(d) \( 5n - 3 \) is \( O(n) \).