

# CSC148 Worksheet 14 Solution

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## Question 1

a.

Operation	Running time
Insert at the front of the list	$\mathcal{O}(n)$
Insert at the end of the list	$\mathcal{O}(1)$
Look up the element at index $i$ , where $0 \leq i < n$	$\mathcal{O}(n)$

### Correct Solution:

Operation	Running time
Insert at the front of the list	$\mathcal{O}(n)$
Insert at the end of the list	$\mathcal{O}(1)$
Look up the element at index $i$ , where $0 \leq i < n$	$\mathcal{O}(1)$

b. The inserting of an element at position  $i$  requires  $n - i$  elements to be shifted to right.

Using this fact, we can write the Big-Oh expression for inserting an item at index  $i$  is  $\mathcal{O}(n - i)$ .

## Question 2

a.

Operation	Running time
Insert at the front of the linked list	$\mathcal{O}(1)$
Insert at the end of the linked list	$\mathcal{O}(n)$
Look up the element at index $i$ , where $0 \leq i < n$	$\mathcal{O}(n)$

## Question 3

## Question 4

## Question 5