CS 62 Quiz 2

February 6, 2015

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. The add(E element) method for the ArrayList class adds an element to the end of the current ArrayList. Using big-O notation, what is the cost of a call of the add method on a list of size n **if there is space in the underlying array**?
2. Using Big-O notation, what is the cost of a call of the add method on a list of size n **if there is no space in the underlying array**?

3. Suppose you wish to prove by induction that 5n - 4n - 1 is divisible by 16 for all n >= 0.   
  
(a) State exactly the base case that you must prove.

PROVE:

(b) For the induction step, what is it you are allowed to assume and what must you prove.

ASSUME:

PROVE:

*IMPORTANT: You do not need to prove anything! Just state what is to be proved (or assumed).*