Analysis of Algorithms:

1.

a. O(n^3)

b. O(n^3)

c. O(n log n)

d. O(n log n)

e. O(1)

2. Linear searching will do the following for 89, it will start at 2, that is not it so it moves to 4, than to 15, than to 24, than 53, than 77, than 89 and it will stop returning the value (either itself or the location in the array). For 10, the Linear search will go through the whole list comparing each element in the list only to hit the end of the list and stop deciding it is not in the list.

Binary searching will do the following for 89, it will start in the middle choosing 53, 53 is not the right number but we know 89 is greater than 53 so we take the second half of the list and select the middle, the middle being 89, we have found our number. For 10, we will start in the middle with 53, not there and its less than 53, we select the first half and choose the middle number which is between 4 and 15, it will compare these and ultimately decide that 10 is not in the list.

3. Swap method has to use three statements in order to swap two values because you need a temporary memory location to save the first value in, than make the first variable equal the second variable, followed by using the temporary value with the first variables value number in it and make that equal the first variable. You cannot do this with less than three statements.