

1.) Why is the linear search also called "sequential search"?

It loops sequentially step through an array, starting with the first element. It compares each element with the value being searched for, and stops when either the value is found or the end of the array is encountered.

3.) In an average case involving an array of N elements, how many times will a linear search function to read the array to locate a specific value? -

$N/2$ times

5.) What is the maximum number of comparisons that a binary search function will make when searching for a value in a 1,000-element array? -

$\log_2(1000) = 10$ times

Formula: $\log_2(N)$

7.) Why is the selection sort more efficient than the bubble sort on large arrays? -

Selection sort performs fewer exchanges because it moves items immediately to their final position in the array.

9.) The _____ search algorithm repeatedly divides the portion of an array being searched in half. -

Binary search

11.) The _____ search algorithm requires that the array's contents be sorted. -

Binary search

13.) If an array is sorted in _____ order, the values are sorted from highest to lowest. -

Descending

15.) If data are sorted in descending order, it means they are ordered from lowest value to highest value. -

F

17.) The maximum number of comparisons performed by the linear search on an array of N elements is $N/2$ (assuming the search values are consistently found). -

F, N times because it went through all of them

18.) Complete the following table

Array Size	50	500	10,000	10,000,000
Linear Search Avg Comparisons	25	250	5,000	5,000,000
Linear Search Max Comparisons	50	500	10,000	10,000,000
Binary Search Max Comparisons	6 about	9 about	14 about	25 about