

## 2) (10 pts) ALG/DSN (Sorting)

(a) (5 pts) Consider running a Bubble Sort on the array shown below. How many swaps will execute for the duration of the algorithm running on the array shown below? Explain how you got your answer.

97	16	45	63	13	22	7	58	72
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Reasoning:

Number of Swaps: \_\_\_\_\_

(b) (5 pts) List the **best case** run time of each of the following sorting algorithms, in terms of  $n$ , the number of items being sorted. Assume all items being sorted are distinct.

(i) Insertion Sort \_\_\_\_\_

(ii) Selection Sort \_\_\_\_\_

(iii) Heap Sort \_\_\_\_\_

(iv) Merge Sort \_\_\_\_\_

(v) Quick Sort \_\_\_\_\_