Name: _____
UCFID: _____
NID: _____

1) (5 pts) DSN (Recursive Coding)

Write a ***recursive*** function that returns the sum of all of the even elements in an integer array ***vals***, in between the indexes ***low*** and ***high***, inclusive. For example, for the function call sumEven(vals, 3, 8) with the array vals shown below, the function should return 24 + 8 + 10 = 42, since these three numbers are the only even numbers stored in the array in between index 3 and index 8, inclusive.

index	0	1	2	3	4	5	6	7	8	9
vals[i]	15	13	28	19	24	8	7	99	10	14

```
int sumEven(int vals[], int low, int high) {



}
```

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

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 _____