1) (10pts) ANL (Algorithm Analysis)

Consider the recursive function `sum` shown below:

```
double sum(int* array, int low, int high){
    if (low == high)
        return array[low];
    int mid = (low+high)/2, left = 0, right = 0, i;
    for (i=low; i<=mid; i++) left += array[i];
    for (i=mid+1; i<=high; i++) right += array[i];
    if (left > right) return left + sum(array, low, mid);
    return right + sum(array, mid+1, high);
}
```

(a) (3 pts) Let T(n) represent the run time of the function call `sum(array, 0, n-1)`, where array is an integer array of size n. Write a recurrence relation that T(n) satisfies.

(b) (7 pts) Using the iteration method, determine a closed-form solution (Big-Oh bound) for T(n). Assume T(1) = O(1).