1.

a. When increasing the size of an array, you are only using one loop to increase the size.

As one loop will always be O(n), and doubling a O(n), no matter how many times you do it would only add the current number of interations to the total.

Thus, the runtime is n + 1 + 2 + 4 + 8 + ... + 2^k = n + 2^k+1 - 1 = 2n - 1, which is O(n).

b. If n is a power of two, the recusion will continue to loop until n = 2, at which point the the program will output B[0].

example: if n = 16, then interations would go 8 + 4 + 2 + 1 = 15

n - 1 = n/2 + n/2/2 + n/2/2/2 + ... + n/2^(n^1/2)

As O(n-1) = O(n), the run time is O(n).