

Homework Assignment #2**Due: March 31, 4:00 p.m.**

1. Recall the dynamically-sized vector discussed in the March 12 lecture. Suppose we change the constants so that the fraction of the array that is used immediately after a rebuild is a , and rebuilds occur when the array becomes full (the array is enlarged) or when the fraction of the array that is currently used dips below b . Here, $0 < b < a < 1$.
 - (a) Show that the amortized cost of any sequence of INC-SIZE and DEC-SIZE operations is still $O(1)$ per operation for any choice of the constants a and b .
 - (b) Suppose you want to ensure that the amount of wasted space in the array never exceeds 10%. How would you choose a and b ?

2. Problem 17.4-7 on page 416 of the textbook. (Note: the DELETE-LARGER-HALF(S) command deletes the largest $\lceil |S|/2 \rceil$ elements from S . Some printings of the textbook mistakenly have $\lceil S/2 \rceil$ instead of $\lceil |S|/2 \rceil$.)