

R-5.4

Let us assume that one cyber-dollar is enough to pay for the execution of each push operation in S , excluding the time spent for growing the array. Now, however, growing the array from size k to size $2k$ requires $3k$ cyber-dollars. Once again, we will need to account for this cost with our “bank account” in the elements of the last half of the vector. To grow from 2^i to 2^{i+1} , we need $3 * 2^i$ cyber dollars. Thus, from the second half of the vector—the last 2^{i-1} elements we need to have 6 cyber-dollars apiece stored away. So, overall, we need to charge 7 cyber-dollars for each push operation - 6 for future growth and 1 for insertion.