Question 1:

a) add, add, add, add, clear, add, clear add, clear, add, add, add, clear, add, add, clear, add, add, clear, add, add, clear.
1,1,1,1,4,1,1,1,1,1,1,1,3,1,1,2,1,1,2,1,1,2
2,2,2,2,0,2,0,2,0,2,2,2,0,2,2,0,2,2,0,2,2,0,2,2,0

b) 16->32
   a. 16 adds cost 16
   b. Resize
      i. Initialize costs 64
      ii. copy from old to new costs 32
   c. total 16+64+32 = 112
   d. average cost 112/16 = 7

Question 2:

a) What is the actual cost of add?
   n

b) What is the actual cost of resize?
   4n

c) Using traditional worst-case analysis, show that the average cost of an operation is NOT constant time.
   Resize cost is 4n, in the worst-case, if there are n operations, the total cost is 4n*n, the average cost is (4n*n)/n = O(4n)

d) Array is 9, filled 3, empty 6
   a. Add 6 cost 6
   b. Resize cost
      i. Initialize costs 27
      ii. copy from old to new costs 9

c. Total is 6+27+9 = 42
d. Average is 7
e. Amortized_Cost(add) is 7
f. e Amortized_Cost(resize) is 0