

Question 1:**Bubble Sort:**

Iteration	Inversion	#Inversion
0	(34,8), (34,32), (34,21), (64,51), (64,32), (64,21), (51,32), (51,21), (32,21)	9
1	(34,32)(34,21)(64,51)(64,32)(64,21)(51,32)(51,21)(32,21)	8
2	(34,32)(34,21)(51,32)(51,21)(64,32)(64,21)	6
3	(34,32)(34,21)(51,32)(51,21)(32,21)(64,51)	6
4	(34,32)(34,21)(51,32)(51,21)(32,21)	5
5	(34,32)(34,21)(32,21)(51,21)	4
6	(34,32)(34,21)(32,21)	3
7	(34,21)(32,21)	2
8	(32,21)	1
Total Inversion		44

Selection Sort:

Iteration	Inversion	#Inversion
0	(34,8), (34,32), (34,21), (64,51), (64,32), (64,21), (51,32), (51,21), (32,21)	9
1	(34,32)(34,21)(64,51)(64,32)(64,21)(51,32)(51,21)(32,21)	8
2	(61,51)(64,32)(64,34)(51,32)(51,34)	5
3	(51,34))(64,34)	2
4	(64,51)	1
Total Inversion		25

Insertion Sort:

Iteration	Inversion	#Inversion
0	(34,8), (34,32), (34,21), (64,51), (64,32), (64,21), (51,32), (51,21), (32,21)	9
1	(34,32)(34,21)(64,51)(64,32)(64,21)(51,32)(51,21)(32,21)	8
2	(32,21)(64,51)(64,21)(51,21)	5
3	(64,51)	1
Total Inversion		23

Question 2:

Item#	Operation	Cost for us	Customer paid	Profit	balance
7	Add	1 to add	7	6	21
8	Add	1 to add	7	6	27
9	Add	3(8) to resize We have 16 slot 1 to add	7	6	3 9
10	Add	1 to add	7	6	15
11	Add	1 to add	7	6	21
12	Add	1 to add	7	6	27
13	Add	1 to add	7	6	33
14	Add	1 to add	7	6	39
15	Add	1 to add	7	6	45
16	Add	1 to add	7	6	51
17	Add	3(16) to resize We have 32 slot 1 to add	7	6	3 9
18	Add	1 to add	7	6	15