Question 3:

The 21,000-seat Air East Arena houses the local professional ice hockey, basketball, indoor soccer, and arena football teams as well as various trade shows, wrestling and boxing matches, tractor pulls, and circuses. Arena vending annually sells large quantities of soft drinks and beer in plastic cups with the name of the arena and the various team logos on them. The local container cup manufacturer that supplies the cups in boxes of 100 has offered arena management the following discount price schedule for cups:

Order Quantity (Boxes)	Price per Box
2,000 – 6,999	$47
7,000 – 11,999	43
12,000 – 19,999	41
20,000+	38

The annual demand for cups is 2.3 million, the annual carrying cost per box of cups is $1.90, and ordering cost is $320. Determine the optimal order quantity and total annual inventory cost.

D	2.300.000	cups	23.000 boxes
Ch	$1,90	/box	
Co	$320		

Discount level	Quantifying order		Price per box	Q*	Modified Qi*	Total cost
0	2.000	6.999	47	2.784	2.784	$1.086.288,48
1	7.000	11.999	43	2.784	7.000	$996.701,43
2	12.000	19.999	41	2.784	12.000	$955.013,33
3	20.000		38	2.784	20.000	$893.368,00

Optimal order quantity:	20.000	boxes
Total annual inventory cost:	$893.368,00	