Lab #4 Marketing *Franz Helfenstein* Name

Whether it's a lemonade stand or a Fortune 500 company, this analysis applies. Suppose Valerie is planning to buy boxed chocolates and resell them. Although Valerie assumes she can resell all that she buys, she will need to lower the price if she wants to sell a very large quantity.

Suppose her Cost of Goods (COG's) is $2.00/box. Valerie also had to purchase a delivery bike and a City license for $150.

1) Let x = number of boxes. Write an equation for Valerie's expenses. E = ________________
Enter this function into Y_1.

2) How much will Valerie spend to buy 50 boxes of chocolates?

3) How many boxes can Valerie afford to buy if she began her business with $700?

4) Clearly, the number sold will depend on the price. At some price point, folks just won't buy. Last year, Valerie's friend varied the <u>price</u> and kept track of her <u>sales</u>.

Enter this data into your TI and find the <u>Quadratic Function</u> that best fits the data. Don't forget to decide which should be the independent/dependent variable.

Selling Price	$2.50	$4.00	$6.00	$8.00	$10.00	
#Sold		88	78	62		0

S(x) = ________________________ *Be sure to save this in Y_2.*

5) Use your equation to fill in the missing values of the above table.

6) Now let's consider <u>Revenue</u>; the money Valerie collects from sales. This is <u>NOT</u> Profit.

Revenue = (Selling Price)(# Sold) *Before proceding, be sure this makes sense.*

Using the results of #4, x = Selling Price and S(x) = # Sold so

Revenue = x S(x) = x Y_2. *Store this in Y_3.*

7) Graph Y_3 and determine the selling price and number sold that will bring in the <u>most</u> money.

x = Selling Price = _________ y = Revenue = ___________

8) Using the x-value you found in #7, compute the optimum number of boxes Valerie should buy/sell.

Optimum # Boxes to Buy/Sell = _______________

9) Now let's consider <u>Profit</u>. Profit = Revenues – Expenses.

Using the value we found in #8, compute Valerie's expenses if she buys the optimum number of boxes.

Valerie's total Expenses = ____________________

10) Compute Valerie's maximum profit and fill in the Table.

Selling Price	#Sold	Total Revenues	Total Expenses	Net Profit