

Coffee Shop
Maximizing Income



After a month of mediocre sales, the snack shop invests their profits in research and development to determine if profit could be further increased. A study was conducted and the results are shown in the table below.

Price for a cup of coffee (x)	\$1	\$1.50	\$2.00	\$3.00	\$3.50	\$4.00
Number of cups sold (y)	20	17	15	8	3	2

As the store manager you are in charge of pricing the coffee to maximize gross income. Consequently you must price your coffee so that the coffee shop brings in the most money possible.

1. Define the term gross income.
2. How can we use the data given in the chart to calculate the gross income at each price point?
3. In the chart above, title the third row "Gross Income" and determine the gross income at each price point. Do you notice any patterns? What happens to the gross income as the price increases?

Name _____ Date _____

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9. Use your graphing calculator and input the equation for profit into the $y =$ screen. Describe the graph that you see.
10. Does the graph reach a maximum point? What are the coordinates of the maximum point on the graph?
11. What does this x value represent? What does the y value represent?
12. How many cups do you expect to sell at this price?
13. Use the data below to determine the price that customers should pay for muffins which maximizes gross income.

Price for a muffin (x)	\$1	\$1.75	\$2.00	\$3.00	\$3.50	\$4.00
Number of muffins sold (y)	30	22	18	12	8	3