Name_____   Integrated Alg./Geometry 1

The design staff at Five Star Amusement Park had another idea- selling raffle tickets for chances to win prizes. The prize – winning tickets would be drawn at random each day.

    a. **Suppose that a market research study produced the following estimates of raffle ticket sales at various prices.**

         i. **Plot the *(price per ticket, number of tickets sold)* estimates on a graph. Because *price per ticket* is the independent variable in this situation, its values are used as x-coordiantes of the graph. Because *number of tickets sold* is the dependent variable, its values are used as the y-coordianates of the graph.**

<u>Y-axis increases by 200 every time.</u>

<u>X-axis increases by 1 every time.</u>

<u>Y-axis labeled *Number of Tickets Sold*</u>

<u>X-axis labeled *Price per Ticket (in dollars)*</u>

        ii. **Describe the pattern relating values of those variables and the way that the relationship is shown in the table and graph.**
        <u>As the price increases by a dollar, number of tickets decreases by 50</u>

        iii. **Does the rule N = 950 – 50p produce the same pairs of *(price per ticket p, number of tickets sold N)* values as the market research study? If so, show your work showing that it does work.**
        <u>Yes p = 10 = 500</u>
        <u>950 – 500 = 450</u>

    b. **Use the data in Part a relating *price per ticket* to the *number of tickets sold* to estimate the *income* from raffle ticket sales at each of the proposed ticket prices.**

        i. **Record those *income* estimates in a table and plot the *(price per ticket, income)* estimates on a graph.**

Price (in $)	1	2	3	4	5	10	15
Income (in $)	900	1700	2400	3000	3500	4500	3000

<u>Y-axis increases by 200 every time.</u>

<u>X-axis increases by 1 every time.</u>

<u>Y-axis labeled *income (in $)*</u>

X-axis labeled *Price (in $)*

ii.   **Describe the relationship between raffle ticket price and income from ticket sales. Explain how the relationship is shown in the table and the graph of *(price per ticket, income)* estimates.**

The *income (in $)* is in relationship with the with the raffle ticket price because the tickets sold multiplied by the raffle ticket price to get the *income (in $).*

iii.   **What do your results in parts I and ii suggest about the ticket price that will lead to maximum income from raffle ticket sales?**

Ten dollars per ticket is about the max income from raffle ticket sales.

How is your answer shown in the table and graph of part i?

When multiplying the x and y together you can see that 10 dollars per ticket will be the greatest.