MCR 3U *Name:*_____
Max / Min Assignment

Method #1 – Factoring and Using the Roots **Worked With** _____
Method #2 – Partial Factoring
Method #3 – Completing the Square **Worked With** _____
Method #4 – The Formula

1. Given the revenue function $R(x) = -3x^2 + 74x$, and the cost function $C(x) = 12x - 559$, where x is the number of items sold in thousands, determine;

Method Used #

a. The **profit** function $P(x)$

ANSWER _____

b. The **value of** x that maximizes profit

ANSWER _____

c. The **maximum profit**.

ANSWER _____

Method Used #

2. The profit function for a certain product is given by $P(x) = -5(x-7)(x-13)$, where x is the number of items sold in thousands. What **quantity of items sold** will produce the maximum profit?

ANSWER _____

Method Used #

3. The cost per day of producing widgets at Company XYZ is modeled by the function $C(x) = 0.04x^2 - 8.504x + 25302$, where $C(x)$ is the cost per day in dollars and x is the number of widgets produced in thousands. Find the **daily production level** that will minimize your costs.

ANSWER _____

Method Used #

4. The lifeguard at a public beach has 700 m of rope available to create a rectangular swimming area. The shoreline will form one side of the rectangle. Determine the **dimensions** of the rectangle that will produce the largest swimming area. State what this **area** will be.

ANSWER _____

ANSWER _____

Method Used #

5. A CD company has been selling 1200 computer games CDs per week at $18 each. Data indicates that for each $1 increase, there will be a loss of 40 sales per week. If it costs $10 to produce each CD, what should the selling price be in order to maximize the profit?

ANSWER _____

Method Used	

Method Used

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