MTH-4108-1 Quadratic Functions Quiz #1 Name:

Date:

Problem #1

A car dealer is trying to maximize his sales. A survey has shown that 90 people would buy the Intrepid model if it were to sell for $19 320; however, for each $345 price reduction, three more people would buy this vehicle.

Given that x represents the number of $345 price reductions, complete the following table and determine the quadratic equation of the form $y = ax^2 + bx + c$ that represents the total revenue from the sale of these vehicles. (10 marks)

Number of $345 reductions	Price of vehicle $	Total number of buyers	Total revenue $
0	19 320	90	1 738 800
1	$19\,320 - (345 \times 1) = 18\,975$	93	1 764 675
2			
x			

Determine the equation for calculating the total revenue.

Equation: _____

Problem #2

The Brick is selling a particular leather sofa for $3 300. At this price, they sell an average of 12 such sofas per week. Accountants for The Brick have ascertained that for each $60 decrease in the price of the sofa, there would be three more sofas sold per week.

Given that x represents the number of $60 price reductions, complete the following table and determine the quadratic equation of the form $y = ax^2 + bx + c$ that represents the weekly revenue from the sale of these sofas. (10 marks)

Number of $ 60 reductions	Price of the sofa	Number of buyers per week	Revenue per week ($)
0	3 300	12	39 600
1	3 300 – 1 x 60	12 + 1 x 3	48 600
2	3 300 – 2 x 60		
x			

Equation: _____