**Math 20-2 Maximization Worksheet**

**Max = (Base + Rate x)(Base – Rate x)**

1. Last season, a struggling hockey club had only 7200 season ticket holders. The owner of the hockey club has decided to raise the price of a package of season tickets for the new season to generate more revenue. The existing cost of a package of season tickets is $1400. Before raising the price of a package of season tickets, he hired a market research company to gather data on the proposed increase. The research company reported that for every $25 increase in price, approximately 100 season ticket holders would not renew their season tickets.

Write the expression to determine the MAXIMUM Revnue:

Max = ( + )( - )

Graph the data:

What is the maximum revenue?

What season ticket price will generate the maximum revenue?

How many season tickets will they sell to generate the maximum revenue?

1. The research company also suggested that the hockey club could decrease the cost of the season tickets by $50 , and that this would generate an extra 400 new season ticket holders for every $50 decrease in price.

Determine the Maximum Revenue equation:

Max = ( + )( - )

Graph the data:

What is the maximum revenue?

What season ticket price will generate the maximum revenue?

How many season tickets will they sell to generate the maximum revenue?

1. John owns a potato farm in southern Alberta. Each year he faces a dilemma as to when to harvest his crop of potatoes. He knows that if he harvests early, the price will be high but his yield will be low and if he harvests late, the price will be low but the yield will be high.

From past experience, he knows that if he harvests on August 15th, he can expect approximately 2000 kg of potatoes which he could sell at $0.60/kg. For each week he waits after August 15th, he can expect an extra 400 kg of potatoes, but the price will reduce by $0.05/kg.

Max Rev = ( + )( - )

Graph the data:

What is the maximum revenue?

What price/kg will generate the maximum revenue?

How many kg of potatoes will he yield at the maximum revenue?

Approximately, what date should he harvest his potatoes to generate the maximum revenue?