**Demand Analysis Problems**

1. A firm’s estimated demand curve is given by the following equation:
2. Based on the estimated demand curve, write the equations for:
3. Total revenue
4. Average revenue
5. Marginal Revenue
6. Calculate the point price elasticity of demand when Q=1600. Is the demand elastic or inelastic at this quantity? How do you know?
7. What will be the maximum total revenue the firm can obtain? (Give the exact dollar amount and explain how you determine it.)
8. A firm’s demand function for product X has the following equation:

where is the quantity purchased, is the price of X, is the price charged for a related good Y, M is per capita income, and A is the dollar spent on advertising.

Suppose the firm spends $1200 on advertising, that and that income is $8,000 per capita.

1. Write the equation of the demand curve for product X.
2. Briefly explain how product X is related to product Y. (Is Y a substitute or a complement, and how can you tell?)
3. Given the stated values of the other independent variables, calculate the point price elasticity of demand for X at
4. Given the stated values of M, A, and at what price and quantity demanded will total revenue maximized? What will the maximum revenue be?

3. For the first time in two years, Big G (the cereal division of General Mills) raised cereal prices by 2 percent. If, as a result of this price increase, the volume of all cereal sold by Big G dropped by 3 percent, what can you infer about the own price elasticity of demand for Bug G cereal? Can you predict whether revenues on sales of its Lucky Charms brand increased or decreased? Explain.

4. Suppose the cross-price elasticity of demand between Entrainment and Food is -5. How much would the price of Food have to change in order to increase the consumption of Entertainment by 50 percent?