NTU SSS Economics HE1001
Tutorial 6 (week 7): The market

1. The inverse demand curve for product X is given by:

$$P_X = 25 - 0.005Q + 0.15P_Y$$

Where P_X price in dollars per unit, Q is represents quantities of sales in pounds per week, and P_Y is price of another product Y in dollars per unit. The inverse supply curve of product X is given by:

$$P_X = 5 + 0.004Q$$

   a. Determine the equilibrium price and quantities of X. Assume that $P_Y = 10$.
   b. Determine whether X and Y are substitutes or complements?

2. Suppose the demand curve for a product is given by Q=300-2P+4I, where I is average income measured in thousands of dollars. The supply curve is Q=3P-50.
   a. If I=25, find the market clearing price and quantity for the product.
   b. If I=50, find the market clearing price and quantity for the product.
   c. Draw a graph to illustrate your answers.

3. Suppose that a government of a certain country is interested in analyzing the domestic market for corn. Their economists estimate the following equations for the demand and supply curves:

Qd = 1,600 - 125P

Qs = 440 + 165P

   Quantities are measured in millions of bushels; prices are measured in dollars per bushel.
   a. Calculate the equilibrium price and quantity that will prevail under a completely free market.
   b. Calculate the price elasticities of supply and demand at the equilibrium values.
   c. The government currently has a $4.50 bushel support price in place. What impact will this support price have on the market? Will the government be forced to purchase corn under a program that requires them to buy up any surpluses? If so, how much?

4. Midcontinent Plastics makes 80 fiberglass truck hoods per day for large truck manufacturers. Eachhood sells for $500.00. Midcontinent sells all of its product to the large truck manufacturers. Suppose the own price elasticity of demand for hoods is 0.4 and the price elasticity of supply is 1.5.
   a. Compute the slope and intercept coefficients for the linear supply and demand equations.