ECON2103 Microeconomics

Chapter 2 Exercises

1. 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.

2. Consider a competitive market for which the quantities demanded and supplied (per year) at various prices are given as follows:

Price (Dollars)	Demand (Millions)	Supply (Millions)
60	22	14
80	20	16
100	18	18
120	16	20

   a. Calculate the price elasticity of demand when the price is $80 and when the price is $100.
   b. Calculate the price elasticity of supply when the price is $80 and when the price is $100.
   c. What are the equilibrium price and quantity?
   d. Suppose the government sets a price ceiling of $80. Will there be a shortage, and if so, how large will it be?

3. A vegetable fiber is traded in a competitive world market, and the world price is $9 per pound. Unlimited quantities are available for import into the United States at this price. The U.S. domestic supply and demand for various price levels are shown as follows:
   a. What is the equation for demand? What is the equation for supply?
   b. At a price of $9, what is the price elasticity of demand? What is it at a price of $12?
   c. What is the price elasticity of supply at $9? At $12?
   d. In a free market, what will be the U.S. price and level of fiber imports?

Price	U.S. Supply (Million LBS)	U.S. Demand (Million LBS)
3	2	34
6	4	28
9	6	22
12	8	16
15	10	10
18	12	4

4. Much of the demand for U.S. agricultural output has come from other countries. In 1998, the total demand for wheat was $Q = 3244 - 283P$. Of this, total domestic demand was $Q_D = 1700 - 107P$, and domestic supply was $Q_S = 1944 + 207P$. Suppose the export demand for wheat falls by 40%.

   a. U.S. farmers are concerned about this drop in export demand. What happens to the free-market price of wheat in the United States? Do farmers have much reason to worry?

   b. Now suppose the U.S. government wants to buy enough wheat to raise the price to $3.50 per bushel. With the drop in export demand, how much wheat would the government have to buy? How much would this cost the government?

5. In 2010, Americans smoked 315 billion cigarettes, or 15.75 billion packs of cigarettes. The average retail price (including taxes) was about $5.00 per pack. Statistical studies have shown that the price elasticity of demand is –0.4, and the price elasticity of supply is 0.5.

   a. Using this information, derive linear demand and supply curves for the cigarette market.

   b. In 1998, Americans smoked 23.5 billion packs cigarettes, and the retail price was about $2.00 per pack. The decline in cigarette consumption from 1998 to 2010 was due in part to greater public awareness of the health hazards from smoking, but was also due in part to the increase in price. Suppose that the *entire decline* was due to the increase in price. What could you deduce from that about the price elasticity of demand?