Unit 2 Practice Problems

Assume that the market for home security systems is perfectly competitive and currently in equilibrium.

(a) Using a correctly labeled graph of supply and demand, show each of the following.

(i) The equilibrium price and quantity, labeled as P* and Q*, respectively

(ii) The area representing consumer surplus, labeled as CS

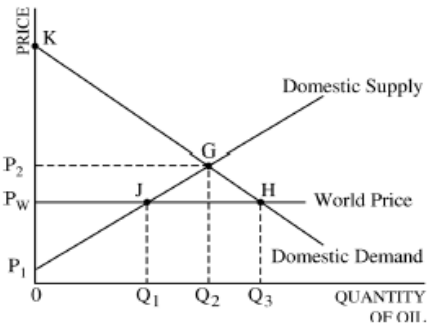
(iii) The area representing producer surplus, labeled as PS

(b) Suppose that the government imposes an effective (binding) price ceiling. Redraw your graph in part (a), and label the ceiling price as P_2. Completely shade the area representing the sum of the consumer surplus and the producer surplus after the imposition of the price ceiling.

(c) Suppose the demand for home security systems decreases and the price ceiling remains binding. Indicate what will happen to each of the following.

(i) Consumer surplus

(ii) Producer surplus



2. The graph above shows the demand for oil by United States residents, the supply of oil by United States producers, and the world price of oil. Use the labeling of the graph to answer the following questions.

(a) Identify the following before international trade occurs.

(i) Price of oil in the United States market

(ii) Quantity of oil produced in the United States

(b) Now assume that the United States begins to import oil at the world market price of P_W. Identify the quantity imported by the United States.

(c) Identify the consumer surplus in the United States market for each of the following cases.

(i) Before international trade

(ii) After international trade

(d) Identify the producer surplus in the United States market for each of the following cases.

(i) Before international trade

(ii) After international trade

2009B Micro

2. Sasha is a utility-maximizing consumer who spends all of her income on peanuts and bananas, both of which are normal goods.

(a) Assume that the last unit of peanuts consumed increased Sasha's total utility from 40 utils to 48 utils and that the last unit of bananas consumed increased her total utility from 52 utils to 56 utils.

(i) If the price of a unit of peanuts is $1 and Sasha is maximizing utility, calculate the price of a unit of bananas.

(ii) If the price of a unit of peanuts increases and the price of a unit of bananas remains unchanged from the price you determined in part (a)(i), how will Sasha's purchase of peanuts change?

(b) Assume that the cross-price elasticity of demand between peanuts and bananas is positive. A widespread disease has destroyed the banana crop. What will happen to the equilibrium price and quantity of peanuts in the short run? Explain.

(c) Assume that the price of bananas increases.

(i) Will the substitution effect increase, decrease, or have no effect on the quantity of bananas demanded?

(ii) What happens to Sasha's real income?

Micro 2012

2. Theresa consumes both bagels and toy cars.

Quantity of Bagels	Marginal Utility from Bagels (utils)	Quantity of Toy Cars	Marginal Utility from Toy Cars (utils)
1	8	1	10
2	7	2	8
3	6	3	6
4	5	4	4
5	4	5	3
6	3	6	2

(a) The table above shows Theresa's marginal utility from bagels and toy cars.

(i) What is her total utility from purchasing three toy cars?

(ii) Theresa's weekly income is \$11, the price of a bagel is \$2, and the price of a toy car is \$1. What quantity of bagels and toy cars will maximize Theresa's utility if she spends her entire weekly income on bagels and toy cars? Explain your answer using marginal analysis.

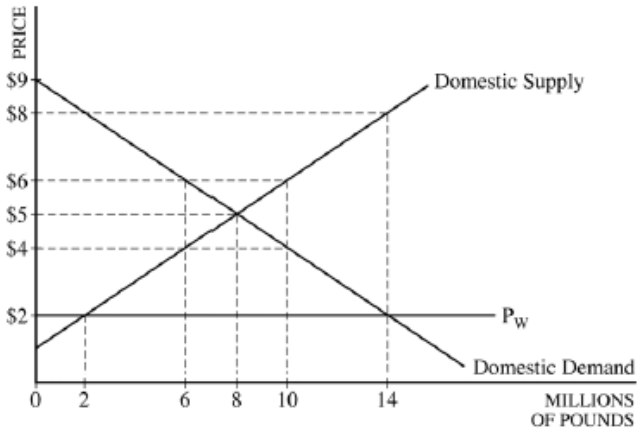
(b) Assume that the price of wheat, an input for the production of bagels, increases. Will Theresa's demand for bagels increase, decrease, or not change? Explain.

(c) Suppose that Theresa's income elasticity for bagels is −0.2. Does the value of Theresa's income elasticity indicate that bagels are normal goods, inferior goods, substitutes, or complements?

(d) Suppose that when the price of toy cars increases by 10 percent, Theresa buys 5 percent fewer toy cars and 4 percent less of a different toy, blocks. Calculate the cross-price elasticity for toy cars and blocks and indicate if it is positive or negative.

Micro 2012

3. Sugar is freely traded in the world market. Assume that a country, Loriland, is a price taker in the world market for sugar. Some of the sugar consumed in Loriland is produced domestically while the rest is imported. The world price of sugar is \$2 per pound. The graph below shows Loriland's sugar market, and P_W represents the world price.



(a) At the world price of \$2 per pound, how much sugar is Loriland importing?

(b) Suppose that Loriland imposes a per-unit tariff on sugar imports and the new domestic price including the tariff is \$4.

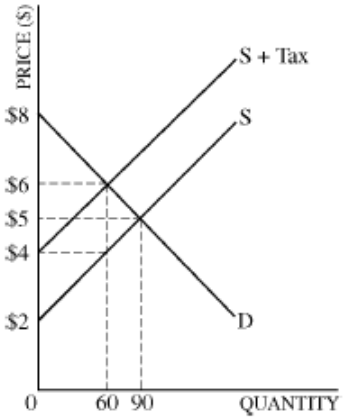
(i) Identify the new level of domestic production.

(ii) Calculate the domestic consumer surplus for Loriland. You must show your work.

(iii) Calculate the total tariff revenue collected by the government. You must show your work.

(c) Given the world price of \$2, what per-unit tariff maximizes the sum of Loriland's domestic consumer surplus and producer surplus?

Micro 2009



2. The graph above illustrates the market for calculators. S denotes the current supply curve, and D denotes the demand curve.
   (a) Calculate the producer surplus before the tax.
   (b) Now assume a per-unit tax of $2 is imposed whose impact is shown in the graph above.
      (i) Calculate the amount of tax revenue.
      (ii) What is the after-tax price that the sellers now keep?
      (iii) Calculate the producer surplus after the tax.
   (c) Is the demand price elastic, inelastic, or unit elastic between the prices of $5 and $6 ? Explain.
   (d) Assuming no externalities, how does the tax affect allocative efficiency? Explain.

1999 Micro

In the United States, textiles are sold in two separate and perfectly competitive markets. The textiles produced in the United States are sold in market A, and imported textiles are sold in market B.

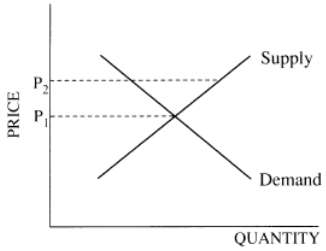
a. Explain how the supply curve for textiles produced in the United States will be affected by each of the following.

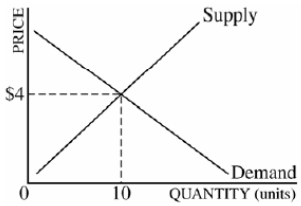
i. A decrease in the number of firms in the United States producing textiles
ii. An increase in the price of textiles

Assume that textiles produced in market A and market B are close substitutes.

b. Using one graph for market A and another for market B, show and explain how a substantial increase in the tariff on textiles imported into the United States will affect each of the following.

i. Equilibrium price and quantity of textiles sold in market B (imported textiles)
ii. Equilibrium price and quantity of textiles sold in market A (textiles produced in the United States)



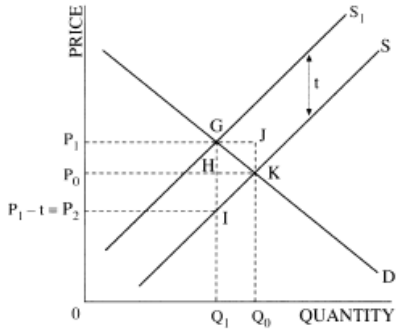


3. The diagram above shows the demand and supply curves for a normal good. The equilibrium price could rise from P_1 to P_2 if
   (A) consumers' incomes increased
   (B) P_2 were set as a legal maximum
   (C) subsidies on the product increased
   (D) the price of a complementary product increased
   (E) costs of production were substantially lowered

32. In the market shown in the graph above, at a price of $5, there will be
   (A) a surplus and the price will eventually fall
   (B) a surplus generating a decrease in demand
   (C) a shortage and the price will eventually rise
   (D) a shortage generating an increase in supply
   (E) an increase in supply and a decrease in demand

Questions 14–16 are based on the following information and diagram.

Assume that the original supply and demand curves of a commodity are S and D, respectively. Also assume that the government imposes an excise tax (per unit tax) of t dollars on the commodity, which shifts the supply curve to S_1.



14. The total amount of tax collected by the government is equal to
    (A) P_1GQ_10
    (B) P_1GIP_2
    (C) P_0P_1JK
    (D) P_0P_1GH
    (E) P_0P_2IH

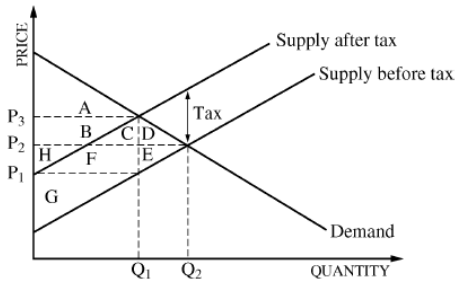
15. Which of the following bears the total tax burden?
    (A) The consumers bear it.
    (B) The producers bear it.
    (C) The consumers and the producers each bear a part of it.
    (D) The group that legally pays the tax bears it.
    (E) The government bears it.

16. The dead weight efficiency loss created by the tax is equal to
    (A) P_1GHP_0
    (B) P_1GKP_0
    (C) GHK
    (D) GKI
    (E) zero

21. If growing corn becomes more profitable than growing wheat, which of the following will occur?

    (A) The supply of corn will decrease.
    (B) The price of wheat will decrease.
    (C) The price of corn will decrease.
    (D) The demand for wheat will increase.
    (E) The demand for corn will increase.

23.



The graph above shows the market for good X. The letters in the graph denote the enclosed areas. If the government imposes an excise tax of t dollars on each unit of good X, which of the following represents the consumer surplus, producer surplus, and dead-weight loss after the imposition of the tax?

	Consumer Surplus	Producer Surplus	Dead-weight Loss
(A)	A	G	D+E
(B)	A	F+E	D+E
(C)	A+B	G+F+E	C+D
(D)	A+B+H	G+F	D+E
(E)	A+B+H	G+F+C	E

18. Assume that the price elasticity of demand for good X is constant and equal to –0.5 and the price elasticity of demand for good Y is constant and equal to -2. Assume that goods X and Y have identical upward-sloping elastic supply curves. If a per-unit excise tax of the same amount is levied on good X and on good Y, which of the following would be true?

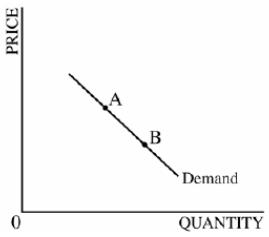
    (A) The percentage decrease in the quantity of good X demanded would be greater than the percentage decrease in the quantity of good Y demanded.
    (B) The tax share paid by consumers of good X would be relatively higher than that paid by consumers of good Y.
    (C) The tax share paid by consumers of good Y would be relatively higher than that paid by consumers of good X.
    (D) The tax share paid by sellers of good Y would be relatively lower than that paid by sellers of good X.
    (E) The tax share paid by sellers of goods X and Y would be the same.

34. If the income elasticity of demand for good X is negative and the cross-price elasticity of demand between good X and good Y is negative, which of the following must be true of good X?

    (A) X is a normal good and is a substitute for Y.
    (B) X is a normal good and is a complement to Y.
    (C) X is an inferior good and is a substitute for Y.
    (D) X is an inferior good and is a complement to Y.
    (E) X is a normal good and Y is an inferior good.

5. To maximize utility, a consumer with a fixed budget will purchase quantities of goods so that the ratios of the marginal utility of each good to its

    (A) total utility are the greatest
    (B) total utility are the same
    (C) price are the greatest
    (D) price are equal to one
    (E) price are equal



4. The graph above shows the market demand for good X. A movement from point A to point B would most likely be caused by

    (A) an increase in the price of good Z, a substitute
    (B) an increase in consumers' income
    (C) a decrease in consumers' income
    (D) a decrease in production costs for good X
    (E) a decrease in the supply of good X