**Economics 102**

**Summer 2014**

**Homework #2**

**Due 7/2/14**

**Directions:** The homework will be collected in a box **before** the lecture. Please place your name, TA name and section number on top of the homework (legibly). Make sure you write your name as it appears on your ID so that you can receive the correct grade. Please remember the section number for the section **you are registered,** because you will need that number when you submit exams and homework. Late homework will not be accepted so make plans ahead of time. **Please show your work.** Good luck!

Please remember to

* Staple your homework before submitting it.
* Do work that is at a professional level: you are creating your “brand” when you submit this homework!
* Not submit messy, illegible, sloppy work.

1. This set of questions is meant as a review of supply and demand shifts. For each question assume the market is initially in equilibrium.

a. Consider the market for bicycles. Suppose that the Surgeon General announces that adults who bicycle for forty minutes a day have substantially better health outcomes than adults who do not bicycle on a daily basis. What do you predict will happen to the equilibrium price and quantity in the market for bicycles? Explain your answer.

b. Consider the market for bicycles. Suppose that the price of gasoline doubles due to the imposition of higher excise taxes on gasoline consumption. At the same time the Surgeon General announces that adults who bicycle for forty minutes a day have substantially better health outcomes than adults who do not bicycle on a daily basis. What do you predict will happen to the equilibrium price and quantity in the market for bicycles? Explain your answer.

c. Consider the market for juice. Suppose that parents realize that juice is full of sugar and may contribute to the growing issue of obesity in children. At the same time, suppose that there is a major frost that damages much of the fruit crop for this year. What do you predict will happen to the equilibrium price and quantity in the market for juice? Explain your answer.

d. Consider the market for juice. Suppose that people’s income rise and the income elasticity of demand for juice is a negative number. What do you predict will happen to the equilibrium price and quantity in the market for juice given this information? Explain your answer.

e. Consider the market for juice. Suppose that people’s income rise and the income elasticity of demand for juice is a positive number. At the same time new technology is developed which allows producers to increase their production of juice by 25% without any change in their production costs. What do you predict will happen to the equilibrium price and quantity in the market for juice? Explain your answer.

f. Consider the market for butter. You are told that the price of margarine has decreased. You also know that the cross price elasticity of demand between butter and margarine is a positive number. What do you predict will happen to the equilibrium price and quantity in the market for butter? Explain your answer.

2. Suppose the market for apple pies in Fruitopia, a small closed economy, is a competitive market with the following demand and supply curves:

Domestic Demand: P = 10 – (1/200)Q

Domestic Supply: P = 5 + (1/200)Q

where P is the price per apple pie and Q is the quantity of apple pies.

a. Given the above information, what is the equilibrium price and quantity in this market?

b. Given the above information, what is the value of consumer surplus (CS) and producer surplus (PS)?

Suppose that the government of Fruitopia decides to open its apple pie market to trade and the world price of apple pies is $6 per apple pie.

c. Describe verbally the effect on Fruitopia of this decision. Be specific and thorough in your description.

d. When Fruitopia opens this market to trade and the world price of apple pies is $6 per apple pie, what happens to the value of CS, the value of PS, the level of domestic consumption of apple pies, and the level of imports or exports?

e. Given your answer in (d), would you conclude that trade is beneficial to Fruitopia? Be specific in your answer and explain who benefits and who loses from this trade and what the overall impact is on this economy of opening this market to trade.

3. Suppose the small closed economy of Weeland has the following domestic demand and domestic supply curves for melons:

Domestic Demand: P = 200 – 4Q

Domestic Supply: P = 40 + Q

where P is the price per box of melons and Q is the number of boxes of melons. Furthermore, you know that the world price of melons is $48 per box.

a. If Weeland opens this market to trade, will Weeland import or export melons? Provide a numerical value of the level of imports or exports and explain in your answer why Weeland either imports or exports melons once this market is open to trade.

b. Suppose that Weeland opens this market to trade, but at the same time, imposes a quota in this market. The license holder revenue from this quota is equal to $100. Given this information, calculate the quota that has been imposed on this market. Show your work and the logic that lies behind your work. Actually when you do this find the two possible quota levels that could have been imposed in this market with the result that license holder revenue is equal to $100 due to the quota. After you do the work and show this work, fill in the following table with the two possible quotas that could be imposed:

Possible Solutions to this question:

|  |  |
| --- | --- |
| Quota 1 = | Quota 2 = |
| Price with Quota 1 = | Price with Quota 2 = |
| Quantity Demanded Domestically with Quota 1 = | Quantity Demanded Domestically with Quota 2 = |
| Quantity Supplied Domestically with Quota 1 = | Quantity Supplied Domestically with Quota 2 = |
| Level of imports with Quota 1 = | Level of imports with Quota 2 = |

c. Given the possible quotas imposed in (b), what is the value of the deadweight loss due to the imposition of these possible quotas? Are the deadweight loss amounts the same with either quota amount? Show your work and then record your DWL findings in the following table:

Possible Quotas:

|  |  |
| --- | --- |
| Quota 1 | Quota 2 |
| DWL with “Quota 1”= | DWL with “Quota 2” = |

d. For one of the quotas (you choose which one you want to use) describe verbally why there are two areas of deadweight loss and the reason why each of these areas is a deadweight loss when the quota is imposed on the market.

4. Consider the market for pencils in Sylvania, a small closed economy. Currently domestic demand and supply for pencils in Sylvania can be described by the following equations:

Domestic Demand: P =1200 – 2Q

Domestic Supply: P = 200 + 6Q

where P is the price per pencil and Q is the quantity of boxes of pencils. Furthermore, you are told that the world price per pencil is $440 (imagine this is for a really large box of pencils, if the price seems high to you).

a. Find the equilibrium price, equilibrium quantity, consumer surplus, and producer surplus in the pencil market in Sylvania. Assume this market is closed to trade.

b. Now, suppose that the government of Sylvania opens the pencil market to trade. Find the price of a box of pencils in Sylvania once this decision is made. Then determine the number of boxes of pencils that will be purchased in Sylvania, the number of boxes of pencils that will be produced domestically, the number of boxes of pencils that will be exported, and the number of boxes of pencils that will be imported. Determine the level of consumer surplus in the pencil market in Sylvania once the market is open to trade. Determine the level of producer surplus in the pencil market in Sylvania once the market is open to trade.

c. Suppose the government of Sylvania opens the pencil market to trade. Furthermore, the government decides to implement a tariff that raises the price of a box of pencils in Sylvania by $60 above the world price. Given this tariff, determine the tariff revenue the government of Sylvania will earn, the deadweight loss due to the tariff, the level of consumer surplus with the tariff, and the level of producer surplus with the tariff.

d. Given the choice of a closed market for pencils, an open market for pencils, or an open market with the described tariff in (c), which of these options will producers of pencils in Sylvania prefer? Explain your answer and make sure you present convincing evidence to support your argument.

5. Suppose that there are three countries that trade with one another: South, North, and East. The following equations represent the market demand curve for peanuts in each of these three countries:

Market Demand for peanuts in South: P = 50 – Q

Market Demand for peanuts in North: P = 100 – (1/2)Q

Market Demand for peanuts in East: P = 50 – Q

where P is the price per unit of peanuts and Q is the number of units of peanuts. Furthermore you are given the following information about the production of peanuts in these three countries:

Market Supply of peanuts in South: P = Q

Market Supply of peanuts in North: P = Q

Market Supply of peanuts in East: P = (1/2)Q

Suppose there are no other countries that demand or supply peanuts in this problem.

a. Given the above information, find the market demand curve for peanuts if these three countries trade with one another.

b. Given the above information, find the market supply curve for peanuts if these three countries trade with one another.

c. If these three countries produce peanuts and trade with one another, what will the market equilibrium price and quantity of peanuts be? Fill in the following table based on these countries trading with one another. [Hint: the numbers get a little messy, but you can do it!]

|  |  |  |  |
| --- | --- | --- | --- |
|  | South | North | East |
| Quantity of Peanuts Produced by each Country |  |  |  |
| Quantity of Peanuts Demanded by each Country |  |  |  |
| Quantity of Peanuts Exported by each Country |  |  |  |
| Quantity of Peanuts Imported by each Country |  |  |  |

e. Look at your answers in the table: if you sum the exports and then sum the imports and compare the two numbers, are they the same? If not, you have an error and you need to go back through the problem to fix the error! In this example, the sum of exports must balance against the sum of imports.