**Economics 102**

**Summer 2014**

**Answers to 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.

Answer:

For all of these scenarios you may find it helpful to draw a sketch of the initial market equilibrium and then draw the relevant shifts in the demand and/or supply curves to see what happens to the equilibrium price and quantity.

a. When the Surgeon General makes her announcement this new information will likely shift the demand for bicycles to the right as individuals demand more bicycles at every price. For a given supply curve for bicycles this will result in an increase in the price of bicycles as well as an increase in the quantity of bicycles purchased relative to their initial levels.

b. When the price of gasoline increases this results in a rightward shift in the demand for bicycles since bicycles and cars are substitutes for one another. When the Surgeon General makes her announcement this new information will likely shift the demand for bicycles to the right as individuals demand more bicycles at every price. Both of these events cause the demand for bicycles to shift further to the right: relative to the initial equilibrium in the market for bicycles we can anticipate that the price of bicycles will increase and the quantity of bicycles purchased will increase.

c. The demand for juice will shift to the left as parents: at every price less juice will be demanded. The supply of juice will also shift to the left since the frost that damages the fruit crop will mean that the cost of the fruit that is used to make juice is now more expensive. Relative to the initial equilibrium in the market for juice we can anticipate that the quantity of juice purchased will decrease while the price of juice may decrease, increase, or remain the same as it was initially. That is, the price of juice will be indeterminate while the quantity of juice will decrease relative to its initial equilibrium level.

d. As income increases the demand curve for juice will shift to the left. We know that it will shift to the left because the income elasticity of demand for juice is a negative number: this implies that as income increases, the quantity of juice demanded decreases at every price. Thus, the prediction is that the equilibrium price will decrease and the equilibrium quantity will decrease.

e. As income increases the demand curve for juice will shift to the right. We know that it will shift to the right because the income elasticity of demand for juice is a positive number: this implies that as income increases, the quantity of juice demanded increases at every price. In addition, the new technology will shift the supply curve for juice to the right: at every price of juice, the quantity of juice supplied will increase due to this new technology. Since both curves shift and we do not know the magnitude of these two shifts we can only predict that the equilibrium quantity will increase while the equilibrium price may increase, decrease, or remain the same.

f. The demand for butter shifts to the left when the price of margarine decreases. We know that the demand curve shifts to the left because the cross price elasticity of demand between these two goods is a positive number: this implies that as the price of margarine decreases the quantity demanded of butter will decrease at every price. The equilibrium price and quantity of butter will both decrease relative to their initial levels.

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.

Answers:

a. To find the equilibrium set the two equations equal to one another:

10 – (1/200)Q = 5 + (1/200)Q

(200)(10)– Q = (200)(5) + Q (examine what I am doing here-this is a handy “short-cut” when finding the solution without the use of a calculator: note that I am not going to actually do the multiplication of (200)(10) or (200)(5) unless I find it absolutely necessary)

(200)(5) = 2Q

Q = 500 apple pies (I didn’t need to do that multiplication!)

P = 10 – (1/200)(Q) = 10 – (1/200)(500) = $7.50 per apple pie

Or, P = 5 + (1/200)(500) = $7.50 per apple pie

b. CS = (1/2)($10 per apple pie = $7.50 per apple pie)(500 apple pies) = $625

PS = (1/2)($7.50 per apple pie - $5 per apple pie)(500 apple pies) = $625

c. Since the world price is lower than the equilibrium price in the closed market this tells us that Fruitopia will import the good in order to take advantage of the fact that the good can be bought on the world market at a lower price than Fruitopia can produce the good. This means that domestic consumption of the good will rise as the price falls to the world price: as price falls the quantity demanded by domestic consumers will increase. We can also expect that the total amount of the good provided by Fruitopia’s producers will decrease: as the price of the good decreases, the quantity supplied of the good decreases. Opening this market to trade will decrease the producer surplus in Fruitopia (domestic producers will sell less of their good and they will sell it at a lower price) and it will increase consumer surplus in Fruitopia (domestic consumers will buy more of the good and they will pay a lower price).

d. CS with trade = (1/2)($10 per apple pie - $6 per apple pie)(800 apple pies) = $1600

PS with trade = (1/2)($6 per apple pie - $5 per apple pie)(200 apple pies) = $100

Domestic Quantity Consumed = 800 apple pies [to find this use the demand curve and set P = $6 per apple pie: thus, P = 10 – (1/200)(Q) implies 6 = 10 – (1/200)(Q) or Q = 800 apple pies)

Domestic Quantity Produced = 200 apple pies [to find this use the supply curve and set P = $6 per apple pie: thus, P = 5 + (1/200)Q implies 6 = 5 + (1/200)Q or Q = 200 apple pies)

Imports = Quantity Demanded Domestically at the World Price – Quantity Supplied Domestically at the World Price = 800 – 200 = 600 imports of apple pies

e. Overall trade is beneficial to the economy of Fruitopia since total surplus increases with trade: initially as a closed economy total surplus was equal to $1250 and then, with trade, total surplus is equal to $1700. But, there are winners and losers in Fruitopia because of this trade: domestic producers are made worse off when the government of Fruitopia opens this market to trade- domestic producers receive lower prices, produce smaller quantities, and see their area of producer surplus decrease from $625 to $100; domestic consumers are made better off when the government of Fruitopia opens this market to trade – domestic consumers pay lower prices, purchase larger quantities, and see their area of consumer surplus increase from $625 to $1600. Trade is beneficial, but it has distributional consequences.

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.

Answer:

a. To determine if Weeland will import or export melons once this market is opened to trade we need to be able to compare the market price in the closed economy with the world price when the market is open to trade. The market price in the closed economy is found by setting the demand equation equal to the supply equation: thus, 200 – 4Q = 40 + Q or Q = 32 boxes of melons. To find the market price, use this quantity and either the market demand curve or the market supply curve: thus, P = 200 – 4Q or P = 40 + Q: we get P = 200 – 4(32) = $72 per box of melons; or P = 40 + 32 = $72 per box of melons. Since the world price of $48 per box of melons is less than the market price in the closed economy this tells us that Weeland will import melons when they open this market to trade.

We can find the level of imports by substituting the world price of $48 per box of melons into the domestic demand curve to get the quantity of melons demanded domestically at the world price: 48 = 200 – 4Q or Q demanded domestically is 38 boxes of melons. Substituting the world price of $48 per box of melons into the domestic supply curve will provide us with the quantity of melons supplied domestically at the world price: 48 = 40 + Q or Q supplied domestically is 8 boxes of melons. The excess demand of 30 boxes of melons will be imported into Weeland and sold at the world price of $48 per box of melons.

b. To find this we will need to figure out some mathematical relationships that exist between price with the quota and the world price, the quantity supplied domestically with the quota, the quantity demanded domestically with the quota, and the license holder revenue. I found it helpful to draw a graph of the market when working out the algebra (I suggest you try to draw this graph as well!). Here goes:

i) We know that at the price with the quota, (the quantity supplied domestically) + (the amount of the quota) = (the quantity demanded domestically). We can use the initially given domestic demand and supply equations and solve each of these in terms of quantity in order to rewrite this equation as follows:

Domestic Demand: P = 200 – 4Q or Q = 50 – (1/4)P

Domestic Supply: Q = P – 40

So, (P – 40) + quota = 50 – (1/4)P

Rearranging and simplifying we can write this equation as

Quota = 90 – (5/4)P or P = 72 – (4/5)(Quota)

ii) We will need another equation with the same variables (Quota and P) if we hope to find a solution efficiently (I don’t want to “hunt” for this!). So, I know that [(the price with the quota) – (world price)][quota] = $100. All I am doing here is finding the area of the license holder revenue in the graph. I know the world price is $48 so I can rewrite this equation as (P – 48)(Quota) = 100

iii) With these two equations I can find a solution:

[(72 – (4/5)Quota – 48][Quota] = $100

[24 – (4/5)(Quota)][Quota] = 100

24(Quota) – (4/5)(Quota)(Quota) = 100 [From here I am going to use the symbol “q” for “quota”]

24q – (4/5)q2 = 100

0 = 100 – 24q + (4/5)q2

0 = 500 – 120q + (4)q2

0 = 4[125 – 30q + q2 ]

0 = 125 – 30q + q2

We can factor this fairly easily!

0 = (25 – q)(5 – q) and then use each term to find a possible answer:

25 – q = 0 or q = 25

And 5 – q = 0 or q = 5

So, a quota of either 25 units or 5 units will result in license holder revenue equaling $100 when the quota is imposed.

Possible Solutions to this question:

|  |  |
| --- | --- |
| Quota 1 = 25 boxes of melons | Quota 2 = 5 boxes of melons |
| Price with Quota 1 = $52 per box of melons | Price with Quota 2 = $68 per box of melons |
| Quantity Demanded Domestically with Quota 1 = 37 boxes of melons | Quantity Demanded Domestically with Quota 2 = 33 boxes of melons |
| Quantity Supplied Domestically with Quota 1 = 12 boxes of melons | Quantity Supplied Domestically with Quota 2 = 28 boxes of melons |
| Level of imports with Quota 1 = 25 boxes of melons | Level of imports with Quota 2 = 5 boxes of melons |

c. When the quota is 25 units the areas of DWL can be calculated as follows:

DWL with “Quota 1” = (1/2)($52 per box of melons - $48 per box of melons)(38 boxes – 37 boxes) + (1/2)($52 per box of melons - $48 per box of melons)(12 boxes – 8 boxes) = $10

When the quota is 5 units the areas of DWL can be calculated as follows:

DWL with “Quota 2” = (1/2)($68 per box of melons - $48 per box of melons)(38 boxes – 33 boxes) + (1/2)($68 per box of melons - $48 per box of melons)(28 boxes – 8 boxes) = $250

The DWL value is different with the two tariffs.

Possible Quotas:

|  |  |
| --- | --- |
| Quota 1 | Quota 2 |
| DWL with “Quota 1”= $10 | DWL with “Quota 2” = $250 |

d. For the quota of 25 units: this quota raises the price of the good from the world price of $48 to the price with the quota, $52. This allows less efficient producers, in this case, domestic producers to produce the product instead of it being produced by more efficient producers, the producers located elsewhere in the world. So, the first triangle of DWL, the one that is on the left hand side of the graph of these areas corresponds to the quota making it possible for domestic “high cost” producers to produce a few more units of the good rather than having foreign “low cost” producers make the good.

The DWL triangle that is on the right hand side of the graph is the loss in consumer surplus that occurs when domestic consumers purchase the good at the price with the quota rather than the world price.

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.

Answers:

a. Start by setting the demand equation equal to the supply equation:

1200 – 2Q = 200 + 6Q

8Q = 1000

Q = 125 boxes of pencils

Then use either the demand or the supply equation to find the equilibrium price:

P =1200 – 2Q = 1200 – 2(125) = $950 per box of pencils

Or, P = 200 + 6Q = 200 + 6(125) = $950 per box of pencils

CS with closed economy = (1/2)($1200 per box of pencils - $950 per box of pencils)(125 boxes of pencils) = $15,625

PS with closed economy = (1/2)($950 per box of pencils - $200 per box of pencils)(125 boxes of pencils) = $46,875

b. At a world price of $440 per box of pencils, domestic producers in Sylvania will produce according to the supply equation P = 200 + 6Q. Substituting in the price of $440 we get 440 = 200 + 6Q or the quantity supplied domestically = 40 boxes of pencils. That is, 40 boxes of pencils will be produced domestically.

At a world price of $440 per box of pencils, domestic consumers in Sylvania will consume according to the demand equation P = 1200 – 2Q. Substituting in the price of $440 we get 440 = 1200 – 2Q or the quantity demanded domestically = 380 boxes of pencils. That is, 380 boxes of pencils will be consumed in Sylvania once this market is open to trade.

In the open market for pencils in Sylvania there is excess demand of 340 boxes of pencils (380 boxes of pencils – 40 boxes of pencils). This excess demand will be met by importing 340 boxes of pencils and selling these pencils at the world price of $440 per box of pencils. There will be no exports since the world price is less than the closed economy price of pencils in Sylvania.

CS with open economy = (1/2)($1200 per box of pencils - $440 per box of pencils)(380 boxes of pencils) = $144,400

PS with open economy = (1/2)($440 per box of pencils - $200 per box of pencils)(40 boxes of pencils) = $4800

c. For this question you first need to realize that the price of a box of pencils in Sylvania with an open economy that has the described tariff will be $500 per box of pencils. At $500 per box of pencils, domestic consumers will demand 350 boxes of pencils while domestic producers will supply 50 boxes of pencils. The difference between these two numbers, the excess demand, will result in imports into Sylvania of 300 boxes of pencils.

The tariff revenue will equal ($500 per box of pencils - $440 per box of pencils)(300 boxes of pencils) = $18,000.

The deadweight loss will equal (1/2)($500 per box of pencils - $440 per box of pencils)(50 box of pencils – 40 box of pencils) + (1/2)($500 per box of pencils - $440 per box of pencils)(380 box of pencils – 300 box of pencils) = $1200.

CS with the tariff = (1/2)($1200 per box of pencils - $500 per box of pencils)(350 boxes of pencils) = $122,500

PS with the tariff = (1/2)($500 per box of pencils - $200 per box of pencils)(50 box of pencils) = $7,500

d. Domestic producers of pencils in Sylvania will prefer the closed market option since it results in the greatest area of producer surplus:

PS with closed economy = $46,875

PS with open economy = $4800

PS with open economy and tariff = $7,500

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.

Answer:

a. One way to find the market demand curve is to draw four graphs horizontally aligned with one another: the first graph would represent the market demand from South, the second graph would represent the market demand from North, the third graph would represent the market demand from East, and the fourth would represent the horizontal summation (i.e., hold price constant and sum together the quantities produced by the three countries at that price) of the three individual country demand curves.

Alternatively, you are looking for the total quantity demanded at any given price. You could find this by rewriting the demand curves in x-intercept form and them summing them together. I will sketch this procedure out here:

South: P = 50 - Q is the same as Qs = 50 - P where the subscript “s” stands for South

North: P = 100 – (1/2)Q is the same as Qn = 200 - 2P

East: P = 50 – Q is the same as Qe = 50 – P

We know from inspection of the three demand curves in slope intercept form that our critical prices occur at $100 (at this price and higher prices there is no demand from North) and at $50 (at prices lower than $50 there is demand from North, South and East). Between prices of $50 and $100 only North has a demand for peanuts. So, for prices greater than or equal to $50, Qtotal = 200 – (2)P; and for prices between $0 and $50, Qtotal = 300 - 4P. Rewriting this in slope intercept form: for prices greater than or equal to $50, P = 100 – (1/2)Qtotal; and for prices between $0 and $50, P = 75 – (1/4)Qtotal.

b. Again you can find the market supply curve by drawing four horizontally aligned graphs: first graph represents the market supply curve for South, the second graph represents the market supply curve for North, the third graph represents the market supply curve for East, and the fourth represents the horizontal summation of the three individual country supply curves.

Alternatively you are looking for the total quantity supplied at any given price. You could find this by rewriting the supply curves in x-intercept form and them summing them together. I will sketch this procedure here:

South: P = Q is the same as Qs = P

North: P = Q is the same as Qn = P

East: P = (1/2)Q is the same as Qe = (2)P

The total market supply will be the market supply curve of South, North and East since all three producers are willing to supply peanuts at a price equal to or greater than $0. The total market supply curve at a price of $0 or greater is therefore equal to Qtotal = P + P + 2P or Qtotal = 4P or P = (1/4)Qtotal.

c. The market equilibrium with trade will occur where the total market demand curve intersects the total market supply curve. But, this is a bit challenging since our total market demand curve has two linear segments and our total market supply curve is linear: our solution must use the right segment of the demand curve! So, how do we figure out which equations are the right ones to use?

I drew a sketch that would provide some guidance and, to tell the truth, I actually drew two sketches: one with the total market demand (two segments here) and the other with the total market supply (a single linear line). I then did a bit of a “thought experiment”: I know that the point (100, 50) is the “kink” point on the demand curve and I thought, “hmmm, what would be the price associated with a quantity supplied of 100 units?” From my graph of the market supply curve, I knew that a quantity of 100 units would result in a price of $25. Since $25 is less than $50 this told me that I should use the market demand curve P = 75 – (1/4)Q and the market supply curve to find the equilibrium in the peanut market. So,

75 – (1/4)Q = (1/4)Q

75 = (1/2)Q

Q = 150 units of peanuts

Then, using either the market demand curve or the market supply curve you can find the equilibrium price:

P = 75 – (1/4)Q = 75 – (1/4)(150) = $37.50 per unit of peanuts

P = (1/4)Q = (1/4)(150) = $37.50 per unit of peanuts

|  |  |  |  |
| --- | --- | --- | --- |
|  | South | North | East |
| Quantity of Peanuts Produced by each Country | Q = P  Q = 37.5 units of peanuts | Q = P  Q = 37.5 units of peanuts | Q = (2)P  Q = (2)(37.5) = 75 units of peanuts |
| Quantity of Peanuts Demanded by each Country | P = 50 - Q  37.5 = 50 - Q  Q = 12.5 units of peanuts | P = 100 – (1/2)Q  37.5 = 100 – (1/2)Q  125 = units of peanuts | P = 50 - Q  37.5 = 50 - Q  Q = 12.5 units of peanuts |
| Quantity of Peanuts Exported by each Country | 25 units of peanuts | 0 units of peanuts | 62.5 units of peanuts |
| Quantity of Peanuts Imported by each Country | 0 units of peanuts | 87.5 units of peanuts | 0 units of peanuts |